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(54) Title: **CHLAMYDIA PNEUMONIAE GENOMIC SEQUENCE AND POLYPEPTIDES, FRAGMENTS THEREOF AND USES THEREOF, IN PARTICULAR FOR THE DIAGNOSIS, PREVENTION AND TREATMENT OF INFECTION**

**(57) Abstract**

The subject of the invention is the genomic sequence and the nucleotide sequences encoding polypeptides of *Chlamydia pneumoniae*, such as cellular envelope polypeptides, which are secreted or specific, or which are involved in metabolism, in the replication process or in virulence, polypeptides encoded by such sequences, as well as vectors including the said sequences and cells or animals transformed with these vectors. The invention also relates to transcriptional gene products of the *Chlamydia pneumoniae* genome, such as, for example, antisense and ribozyme molecules, which can be used to control growth of the microorganism. The invention also relates to methods of detecting these nucleic acids or polypeptides and kits for diagnosing *Chlamydia pneumoniae* infection. The invention also relates to a method of selecting compounds capable of modulating bacterial infection and a method for the biosynthesis or biodegradation of molecules of interest using the said nucleotide sequences or the said polypeptides. The invention finally comprises, pharmaceutical, in particular vaccine, compositions for the prevention and/or treatment of bacterial, in particular *Chlamydia pneumoniae*, infections.

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**CHLAMYDIA PNEUMONIAE GENOMIC SEQUENCE AND POLYPEPTIDES,  
FRAGMENTS THEREOF AND USES THEREOF, IN PARTICULAR FOR THE DIAGNOSIS,  
PREVENTION AND TREATMENT OF INFECTION**

5

The subject of the invention is the genomic sequence and the nucleotide sequences encoding polypeptides of *Chlamydia pneumoniae*, such as cellular envelope polypeptides, which are secreted or specific, or which are involved in metabolism, in the replication process or in virulence, polypeptides encoded by such sequences, as well as vectors including the said sequences and cells or animals transformed with these vectors. The invention also relates to transcriptional gene products of the *Chlamydia pneumoniae* genome, such as, for example, antisense and ribozyme molecules, which can be used to control growth of the microorganism. The invention also relates to methods of detecting these nucleic acids or polypeptides and kits for diagnosing *Chlamydia pneumoniae* infection. The invention also relates to a method of selecting compounds capable of modulating bacterial infection and a method for the biosynthesis or biodegradation of molecules of interest using the said nucleotide sequences or the said polypeptides. The invention finally comprises, pharmaceutical, in particular vaccine, compositions for the prevention and/or treatment of bacterial, in particular *Chlamydia pneumoniae*, infections.

Comparative analysis of the sequence of the gene encoding the ribosomal 16S RNA has been widely used for the phylogenetic study of prokaryotes. This approach has made it possible to classify the Chlamydiae among the eubacteria, among which they represent a well-isolated group, with, nevertheless, a very weak link with the planctomyces. The Chlamydiae thus exhibit some unique characteristics within the eubacteria, in particular their development cycle and the structure of their membranes. They have a unique two-phase cell cycle: the elementary body, a small extracellular form, attaches to the host and is phagocytosed; in the phagosome, it is converted to the replicative intracellular form, the reticulate body. The Chlamydiae are obligate intracellular bacteria which multiply in eukaryotic cells at the expense of their energy reserves and nucleotide pools; they are responsible for a wide variety of diseases in mammals and birds. The Chlamydiae are the only members of the order Chlamydiales, of the family Chlamydiaceae and of the genus *Chlamydia*. Within the genus *Chlamydia*, four species are currently described: *Chlamydia trachomatis*, *Chlamydia psittaci*, *Chlamydia pneumoniae* and *Chlamydia pecorum*. These bacteria are grouped together and share biological and biochemical properties. Among them, only the first three infect humans, *Chlamydia pecorum* being a pathogen of ruminants.

The species *Chlamydia psittaci* infects many animals, in particular birds, and is transmissible to humans. It is responsible for atypical pneumonia, for hepatic and renal dysfunction, for endocarditis and for conjunctivitis.

The species *Chlamydia trachomatis* is the best characterized. Besides a murine strain, it is divided into two groups which are distinguishable by the nature of the diseases for which they are responsible: trachoma, genital attack and venereal lymphogranulomatosis. There are fifteen human serotypes of *Chlamydia trachomatis* (A, K) and LGV (L1, L2, L3). Strains A to C are mainly found in eye infections, whereas strains D to K and LGV are essentially responsible for genital entry infections. It should be mentioned that the LGV strains are responsible for systemic diseases. Historically, it was in 1906 that Halberstaeder and Von Provaseck discovered, in trachoma patients, the presence of inclusions in the cytoplasm of the cells derived from conjunctival scrapings. In 1940, Rake and Jones described these same inclusions in certain cells obtained by puncturing the ganglia from a patient suffering from venereal granulomatosis. Characterization of the *Chlamydia trachomatis* microorganism was only successfully carried out in 1957, after a series of isolations in cell cultures.

It was in 1983 that *Chlamydia pneumoniae* was recognized as a human pathogen (Grayston JT et al., 1986); since then, special attention has been paid to this bacterium and it is estimated (Gaydos CA et al., 1994) that 10% of pneumonias, and 5% of bronchitides and sinusites are attributable to *Chlamydia pneumoniae* (Aldous MB et al., 1992). More recently, the association of this bacterium with the pathogenesis of asthmatic disease and of cardiovascular impairments is increasingly of interest.

Serological studies have made it possible to observe that *Chlamydia pneumoniae* infection is common in children between 5 and 16 years of age. Before this age, it is rare to find antibodies; the increase in the number of individuals carrying antibodies is then correlated with age up to 20 years. Accordingly, 50% of adults are carriers of antibodies, it being possible for this prevalence to be as high as 75%. These figures are all the more striking since a first infection induces antibody levels of which the persistence over time is limited to 3 or at most 5 years, which suggests frequent reinfection during the entire lifespan. The annual seroconversion rate is about 8% between 8 and 12 years and about 6% between 12 and 16 years (Haidl et al., 1994). Before the age of 15 years, the seroprevalence of the disease is identical between both sexes. After this age, men are more frequently infected than women; this is true in all regions worldwide where such studies have been carried out.

These infections are geographically highly widespread, as shown by numerous studies carried out throughout the world (Kanamoto Y et al., 1991; Tong CY et al., 1993). Developed countries of the north such as Canada, Denmark and Norway have the lowest infection rates; conversely, the highest prevalence rates are found in the less developed countries of tropical regions where the infection may occur before the age of 5 years.

Humans are the only known reservoir for *Chlamydia pneumoniae* and it is probable that the infection is caused by direct transmission, respiratory secretions probably being responsible for this low-yield transmission (Aldous et al., 1992). The chain of transmission may also appear to be indirect (Kleemola M et al., 1988), suggesting that the infection is caused by an effective transmission, but also that asymptomatic carriers exist, which could explain the high prevalence of the disease.

Other studies (Mordhorst CH et al., 1992) show that the efficiency of the transmission varies according to the individuals and list cases of infection affecting all or the majority of members of one family or of a group of families. The period of incubation is several weeks, significantly longer in this regard than that of many other respiratory pathogenic agents. Although under conditions of high  
5 relative humidity the infectivity of *Chlamydia pneumoniae* in the open air decreases rapidly, suggesting a direct mode of transmission under these conditions, it is probable that the transmission occurs in some cases indirectly since the microorganism can survive for up to 30 hours in a hostile environment (Falsey et al., 1993).

Clinical manifestations due to *Chlamydia pneumoniae* are essentially respiratory  
10 diseases. Pneumonia and bronchitis are the most frequent because they are clinically patent: since etiological diagnosis is evoked in this case, the infectious agent is identified. The asymptomatic diseases are probably numerous (Grayston JT et al., 1992; Grayston JT et al., 1986; Thom DH et al., 1990). The disease then progresses via bronchitis or pneumonia; fever is absent at the time of examination but is sometimes reported by the patient. The degree of seriousness of the disease is  
15 variable and in hospitalized patients, it is common to observe pleural effusion; a generalized infection may also be observed and, in severe cases, anatomicopathological examination shows *Chlamydia pneumoniae* diseases.

Other syndromes such as sinusitis (Hashiguchi K et al., 1992), purulent otitis media (Ogawa H et al., 1992), or pharyngitis (Huovinen P et al., 1989) have been described, as well as  
20 infections with respiratory impairments similar to asthma (Hahn DL et al., 1991). *Chlamydia pneumoniae* has also been associated with sarcoidosis, with erythema nodosum (Sundelof et al., 1993) and one case of Guillain-Barré syndrome has even been described (Haidl et al., 1992). The involvement of *Chlamydia pneumoniae* in Reiter's syndrome has also been evaluated (Braun J et al., 1994).

25 The association of *Chlamydia pneumoniae* with coronary diseases and with myocardial infarction was first suspected from the observation of the high antibody level in 71% of patients having a heart disease (Shor A et al., 1992; Kuo CC et al., 1993; Puolakkainen M et al., 1993; Thomas GN et al., 1997). Studies carried out in several countries have shown similar results in patients with atheromatous impairments (Shor A et al., 1992; Kuo CC et al., 1993; Puolakkainen M  
30 et al., 1993; Grayston JT et al., 1996; Casas-Ciria J et al., 1996; Thomas GN et al., 1997; Jackson LA et al., 1997) and in patients with carotid impairments. Anatomicopathological and microbiological studies have detected *Chlamydia pneumoniae* in the vessels. The electron microscope has made it possible to visualize the bacterium (Ladany S et al., 1989), which has in fact been demonstrated by other techniques such as PCR (Campbell LA et al., 1992; Kuo CC et al., 1993; Kuo CC et al., 1988). It  
35 also appears that the bacterium is more frequently found in old atheromatous lesions. Other studies carried out on young subjects from 15 to 35 years have given the opportunity to study the coronary arteries of people without atherosclerosis, this observation not being possible in older subjects (the

onset of the atheromatous disease is early). In these young subjects, the PCR studies did not find *Chlamydia pneumoniae* in subjects free of atheromatous disease, but revealed the presence of *Chlamydia pneumoniae* in two of the eleven subjects who showed early lesions and in six of the seven subjects who developed atheroma plaques. These studies therefore show that the atheroma plaque is very strongly correlated with the presence of *Chlamydia pneumoniae*, but the role played by the bacterium in vascular pathology is not yet defined.

The data relating to controlled clinical studies analysing the effect of treatments in *Chlamydia pneumoniae* infections are limited in number. Unlike penicillin, ampicillin or the sulphonamides, erythromycin, tetracycline or doxycycline show an antibiotic activity *in vitro* against *Chlamydia pneumoniae*. However, a treatment at high doses should be continued for several weeks in order to avoid a recurrence of the infection. Accordingly, the use of two new macrolides, clarithromycin and azithromycin, whose diffusion, bioavailability and half-life allow shorter and better tolerated cures, is nowadays preferred. In the absence of definitive proof based on the results of clinical studies, an effective, without recurrences, and well-tolerated treatment of *Chlamydia pneumoniae* infections therefore remains desirable.

An even more important need up until now relates to a specific and sensitive diagnosis, which can be carried out conveniently and rapidly, allowing early screening for the infection. Methods based on *Chlamydia pneumoniae* culture are slow and require a considerable know-how because of the difficulty involved in the collection, preservation and storage of the strain under appropriate conditions. Methods based on antigen detection (ELA, DFA) or on nucleic acid amplification (PCR) provide tests which are more suitable for laboratory practice. A reliable, sensitive and convenient test, which allows distinction between serogroups and a fortiori between *Chlamydia pneumoniae* species is therefore highly desirable.

This is all the more important since the symptoms of *Chlamydia pneumoniae* infection appear slowly, since all the pathologies associated with these infections have not yet been identified, and since, as has been mentioned above, an association is suspected between these infections and serious chronic infections, asthma or atherosclerosis.

No vaccine is yet available against *Chlamydia pneumoniae*: this is due to the labile nature of the antigens specific to the strain, which has so far prevented their specific identification.

Although the number of studies and of animal models developed is high, the antigens used have not induced sufficient protective immunity to lead to the development of human vaccines. In the case of *Chlamydia pneumoniae*, the role of the immune defense in the physiology and pathology of the disease should probably be understood in order to develop satisfactory vaccines.

More detailed information relating to the biology of these strains, their interactions with their hosts, the associated phenomena of infectivity and those of escaping the immune defenses of the host in particular, and finally their involvement in the development of these associated pathologies, will allow a better understanding of these mechanisms. In the light of the preceding text which shows

in particular the limitations of the means of controlling *Chlamydia pneumoniae* infection, it is therefore at present essential, on the one hand, to develop molecular tools, in particular from a better genetic knowledge of *Chlamydia pneumoniae*, but also to develop new preventive and therapeutic treatments, new diagnostic methods and new vaccine strategies which are specific, effective and 5 tolerated. This is precisely the object of the present invention.

The subject of the present invention is the nucleotide sequence having the sequence SEQ ID No. 1 of the *Chlamydia pneumoniae* genome. However, the invention is not limited to SEQ ID No. 1, but encompasses genomes and nucleotides encoding polypeptides of strain variants, polymorphisms, allelic variants, and mutants.

10 Thus, the subject of the present invention encompasses nucleotide sequences characterized in that they are chosen from:

a) the nucleotide sequence of SEQ ID No. 1, a nucleotide sequence exhibiting at least 99.9% identity with the sequence SEQ ID No. 1, the nucleotide sequence of the genomic DNA contained within ATCC Deposit No. \_\_\_, the nucleotide sequence of a clone insert 15 within ATCC Deposit No. \_\_\_;

b) a nucleotide sequence homologous to the sequence SEQ ID No. 1;

c) a polynucleotide sequence that hybridizes to the nucleotide sequence of a) under conditions of high or intermediate stringency as described below:

(i) By way of example and not limitation, procedures using conditions of high stringency are 20 as follows: Prehybridization of filters containing DNA is carried out for 8 h to overnight at 65EC in buffer composed of 6X SSC, 50 mM Tris-HCl (pH 7.5), 1 mM EDTA, 0.02% PVP, 0.02% Ficoll, 0.02% BSA, and 500 µg/ml denatured salmon sperm DNA. Filters are hybridized for 48 h at 65EC, the preferred hybridization temperature, in prehybridization mixture containing 100 µg/ml denatured salmon sperm DNA and 5-20 X 10<sup>6</sup> cpm of <sup>32</sup>P-labeled probe. Alternatively, the hybridization step 25 can be performed at 65EC in the presence of SSC buffer, 1 x SSC corresponding to 0.15M NaCl and 0.05 M Na citrate. Subsequently, filter washes can be done at 37EC for 1 h in a solution containing 2X SSC, 0.01% PVP, 0.01% Ficoll, and 0.01% BSA, followed by a wash in 0.1X SSC at 50EC for 45 min. Alternatively, filter washes can be performed in a solution containing 2 x SSC and 0.1% SDS, or 0.5 x SSC and 0.1% SDS, or 0.1 x SSC and 0.1% SDS at 68EC for 15 minute intervals. Following 30 the wash steps, the hybridized probes are detectable by autoradiography. Other conditions of high stringency which may be used are well known in the art and as cited in Sambrook et al., 1989, Molecular Cloning, A Laboratory Manual, Second Edition, Cold Spring Harbor Press, N.Y., pp. 9.47-9.57; and Ausubel et al., 1989, Current Protocols in Molecular Biology, Green Publishing Associates and Wiley Interscience, N.Y. are incorporated herein in their entirety.

35 (ii) By way of example and not limitation, procedures using conditions of intermediate stringency are as follows: Filters containing DNA are prehybridized, and then hybridized at a

temperature of 60EC in the presence of a 5 x SSC buffer and labeled probe. Subsequently, filters washes are performed in a solution containing 2x SSC at 50EC and the hybridized probes are detectable by autoradiography. Other conditions of intermediate stringency which may be used are well known in the art and as cited in Sambrook et al., 1989, Molecular Cloning, A Laboratory Manual, 5 Second Edition, Cold Spring Harbor Press, N.Y., pp. 9.47-9.57; and Ausubel et al., 1989, Current Protocols in Molecular Biology, Green Publishing Associates and Wiley Interscience, N.Y. are incorporated herein in their entirety.

- 10 d) a nucleotide sequence complementary to the sequence SEQ ID No. 1 or complementary to a nucleotide sequence as defined in a), b) or c) and a nucleotide sequence of their corresponding RNA;
- e) a nucleotide sequence of a representative fragment of the sequence SEQ ID No. 1, or of a representative fragment of the nucleotide sequence as defined in a), b), c) or d);
- f) a nucleotide sequence comprising a sequence as defined in a), b), c), d) or e);
- 15 g) a nucleotide sequence capable of being obtained from a nucleotide sequence as defined in a), b), c), d), e) or f); and
- h) a modified nucleotide sequence of a nucleotide sequence as defined in a), b), c), d), e), f) or g).

Nucleotide sequence, polynucleotide or nucleic acid are understood to mean, according to the present invention, either a double-stranded DNA, a single-stranded DNA or products of 20 transcription of the said DNAs.

It should be understood that the present invention does not relate to the genomic nucleotide sequences of *Chlamydia pneumoniae* taken in their natural environment, that is to say in the natural state. They are sequences which may have been isolated, purified or partially purified, by separation methods such as, for example, ion-exchange chromatography, molecular size exclusion 25 chromatography or affinity chromatography, or alternatively fractionation techniques based on solubility in various solvents, or by genetic engineering methods such as amplification, cloning or subcloning, it being possible for the sequences of the invention to be carried by vectors.

The nucleotide sequence SEQ ID No. 1 was obtained by sequencing the *Chlamydia pneumoniae* genome by the method of directed sequencing after fluorescent automated sequencing of 30 the inserts of clones and assembling of these sequences of nucleotide fragments (inserts) by means of softwares (cf. Examples). In spite of the high precision of the sequence SEQ ID No. 1, it is possible that it does not perfectly, 100% represent the nucleotide sequence of the *Chlamydia pneumoniae* genome and that a few rare sequencing errors or uncertainties still remain in the sequence SEQ ID No. 1. In the present invention, the presence of an uncertainty for an amino acid is designated 35 by "Xaa" and that for a nucleotide is designated by "N" in the sequence listing below. These few rare errors or uncertainties could be easily detected and corrected by persons skilled in the art using the entire chromosome and/or its representative fragments according to the invention and standard



amplification, cloning and sequencing methods, it being possible for the sequences obtained to be easily compared, in particular by means of a computer software and using computer-readable media for recording the sequences according to the invention as described, for example, below. After correcting these possible rare errors or uncertainties, the corrected nucleotide sequence obtained would still exhibit at least 99.9% identity with the sequence SEQ ID No. 1. Such rare sequencing uncertainties are not present within the DNA contained within ATCC Deposit No. \_\_\_ or \_\_\_, and whatever rare sequence uncertainties that exist within SEQ ID No. 1 can routinely be corrected utilizing the DNA of the ATCC deposits.

Homologous nucleotide sequence for the purposes of the present invention is understood to mean a nucleotide sequence having a percentage identity with the bases of the nucleotide sequence SEQ ID No. 1 of at least 80%, preferably 90% and 95%, this percentage being purely statistical and it being possible for the differences between the two nucleotide sequences to be distributed randomly and over their entire length. The said homologous sequences exhibiting a percentage identity with the bases of the nucleotide sequence SEQ ID No. 1 of at least 80%, preferably 90% and 95%, may comprise, for example, the sequences corresponding to the genomic sequence or to the sequences of its representative fragments of a bacterium belonging to the Chlamydia family, including the species *Chlamydia trachomatis*, *Chlamydia psittaci* and *Chlamydia pecorum* mentioned above, as well as the sequences corresponding to the genomic sequence or to the sequences of its representative fragments of a bacterium belonging to the variants of the species *Chlamydia pneumoniae*. In the present invention, the terms family and genus are mutually interchangeable, the terms variant, serotype, strain and subspecies are also mutually interchangeable. These homologous sequences may thus correspond to variations linked to mutations within the same species or between species and may correspond in particular to truncations, substitutions, deletions and/or additions of at least one nucleotide. The said homologous sequences may also correspond to variations linked to the degeneracy of the genetic code or to a bias in the genetic code which is specific to the family, to the species or to the variant and which are likely to be present in *Chlamydia*.

Protein and/or nucleic acid sequence homologies may be evaluated using any of the variety of sequence comparison algorithms and programs known in the art. Such algorithms and programs include, but are by no means limited to, TBLASTN, BLASTP, FASTA, TFASTA, and CLUSTALW (Pearson and Lipman, 1988, *Proc. Natl. Acad. Sci. USA* 85(8):2444-2448; Altschul *et al.*, 1990, *J. Mol. Biol.* 215(3):403-410; Thompson *et al.*, 1994, *Nucleic Acids Res.* 22(2):4673-4680; Higgins *et al.*, 1996, *Methods Enzymol.* 266:383-402; Altschul *et al.*, 1990, *J. Mol. Biol.* 215(3):403-410; Altschul *et al.*, 1993, *Nature Genetics* 3:266-272).

In a particularly preferred embodiment, protein and nucleic acid sequence homologies are evaluated using the Basic Local Alignment Search Tool ("BLAST") which is well known in the art (see, *e.g.*, Karlin and Altschul, 1990, *Proc. Natl. Acad. Sci. USA* 87:2267-2268; Altschul *et al.*, 1990, *J. Mol. Biol.* 215:403-410; Altschul *et al.*, 1993, *Nature Genetics* 3:266-272; Altschul *et al.*, 1997,

*Nuc. Acids Res.* 25:3389-3402). In particular, five specific BLAST programs are used to perform the following task:

- (1) BLASTP and BLAST3 compare an amino acid query sequence against a protein sequence database;
- (2) BLASTN compares a nucleotide query sequence against a nucleotide sequence database;
- (3) BLASTX compares the six-frame conceptual translation products of a query nucleotide sequence (both strands) against a protein sequence database;
- (4) TBLASTN compares a query protein sequence against a nucleotide sequence database translated in all six reading frames (both strands); and
- (5) TBLASTX compares the six-frame translations of a nucleotide query sequence against the six-frame translations of a nucleotide sequence database.

The BLAST programs identify homologous sequences by identifying similar segments, which are referred to herein as "high-scoring segment pairs," between a query amino or nucleic acid sequence and a test sequence which is preferably obtained from a protein or nucleic acid sequence database. High-scoring segment pairs are preferably identified (*i.e.*, aligned) by means of a scoring matrix, many of which are known in the art. Preferably, the scoring matrix used is the BLOSUM62 matrix (Gonnet *et al.*, 1992, *Science* 256:1443-1445; Henikoff and Henikoff, 1993, *Proteins* 17:49-61). Less preferably, the PAM or PAM250 matrices may also be used (see, *e.g.*, Schwartz and Dayhoff, eds., 1978, *Matrices for Detecting Distance Relationships: Atlas of Protein Sequence and Structure*, Washington: National Biomedical Research Foundation).

The BLAST programs evaluate the statistical significance of all high-scoring segment pairs identified, and preferably selects those segments which satisfy a user-specified threshold of significance, such as a user-specified percent homology. Preferably, the statistical significance of a high-scoring segment pair is evaluated using the statistical significance formula of Karlin (see, *e.g.*, Karlin and Altschul, 1990, *Proc. Natl. Acad. Sci. USA* 87:2267-2268).

Nucleotide sequence complementary to a sequence of the invention is understood to mean any DNA whose nucleotides are complementary to those of the sequence of the invention, and whose orientation is reversed (antiparallel sequence).

The present invention further comprises fragments of the sequences of a) through f), above. Representative fragments of the sequences according to the invention will be understood to mean any nucleotide fragment having at least 8 successive nucleotides, preferably at least 12 successive nucleotides, and still more preferably at least 15 or at least 20 successive nucleotides of the sequence from which it is derived. It is understood that such fragments refer only to portions of SEQ ID No. 1 that are not currently listed in a publicly available database.

Among these representative fragments, those capable of hybridizing under stringent conditions with a nucleotide sequence according to the invention are preferred. Hybridization under

stringent conditions means that the temperature and ionic strength conditions are chosen such that they allow hybridization to be maintained between two complementary DNA fragments.

By way of illustration, high stringency conditions for the hybridization step for the purposes of defining the nucleotide fragments described above, are advantageously the following.

5           The hybridization is carried out at a preferred temperature of 65EC in the presence of SSC buffer, 1 × SSC corresponding to 0.15 M NaCl and 0.05 M Na citrate. The washing steps may be, for example, the following:

2 × SSC, 0.1% SDS at room temperature followed by three washes with 1 × SSC, 0.1% SDS; 0.5 × SSC, 0.1% SDS; 0.1 × SSC, 0.1% SDS at 68EC for 15 minutes.

10           Intermediate stringency conditions, using, for example, a temperature of 60EC in the presence of a 5 × SSC buffer, or of low stringency, for example a temperature of 50EC in the presence of a 5 × SSC buffer, respectively require a lower overall complementarity for the hybridization between the two sequences.

          The stringent hybridization conditions described above for a polynucleotide of about  
15 300 bases in size will be adapted by persons skilled in the art for larger- or smaller-sized oligonucleotides, according to the teaching of Sambrook et al., 1989.

          Among the representative fragments according to the invention, those which can be used as primer or probe in methods which make it possible to obtain homologous sequences or their representative fragments according to the invention, or to reconstitute a genomic fragment found to be  
20 incomplete in the sequence SEQ ID No. 1 or carrying an error or an uncertainty, are also preferred, these methods, such as the polymerase chain reaction (PCR), cloning and sequencing of nucleic acid being well known to persons skilled in the art. These homologous nucleotide sequences corresponding to mutations or to inter- or intra-species variations, as well as the complete genomic sequence or one of its representative fragments capable of being reconstituted, of course form part of  
25 the invention.

          Among the said representative fragments, those which can be used as primer or probe in methods allowing diagnosis of the presence of *Chlamydia pneumoniae* or one of its associated microorganisms as defined below are also preferred.

          The representative fragments capable of modulating, regulating, inhibiting or inducing  
30 the expression of a gene of *Chlamydia pneumoniae* or one of its associated microorganisms, and/or capable of modulating the replication cycle of *Chlamydia pneumoniae* or one of its associated microorganisms in the host cell and/or organism, are also preferred. Replication cycle is intended to designate invasion, multiplication, intracellular localization, in particular retention in the vacuole and inhibition of the process of fusion to the lysosome, and propagation of *Chlamydia pneumoniae* or one  
35 of its associated microorganisms from host cells to host cells.

          Among the said representative fragments, those corresponding to nucleotide sequences corresponding to open reading frames, called ORF sequences (ORF for open reading frame), and

encoding polypeptides, such as for example, but without being limited thereto, the ORF sequences which will be later described, are finally preferred.

The representative fragments according to the invention may be obtained, for example, by specific amplification, such as PCR, or after digestion, with appropriate restriction enzymes, of nucleotide sequences according to the invention; these methods are in particular described in the manual by Sambrook et al., 1989. The said representative fragments may also be obtained by chemical synthesis when they are not too large in size and according to methods well known to persons skilled in the art. For example, such fragments can be obtained by isolating fragments of the genomic DNA of ATCC Deposit No. \_\_\_\_ or a clone insert present at this ATCC Deposit No. \_\_\_\_.

10 The representative fragments according to the invention may be used, for example, as primer, to reconstitute some of the said representative fragments, in particular those in which a portion of the sequence is likely to be missing or imperfect, by methods well known to persons skilled in the art such as amplification, cloning or sequencing techniques.

Modified nucleotide sequence will be understood to mean any nucleotide sequence obtained by mutagenesis according to techniques well known to persons skilled in the art, and exhibiting modifications in relation to the normal sequences, for example mutations in the regulatory and/or promoter sequences for the expression of a polypeptide, in particular leading to a modification of the level of expression of the said polypeptide or to a modulation of the replicative cycle.

Modified nucleotide sequence will also be understood to mean any nucleotide sequence encoding a modified polypeptide as defined below.

The subject of the present invention also includes *Chlamydia pneumoniae* nucleotide sequences characterized in that they are chosen from a nucleotide sequence of an open reading frame (ORF), that is, the ORF2 to ORF1297 sequences.

The ORF2 to ORF1297 nucleotide sequences are defined in Tables 1 and 2, *infra*, by their position on the sequence SEQ ID No. 1. For example, the ORF2 sequence is defined by the nucleotide sequence between the nucleotides at position 42 and 794 on the sequence SEQ ID No. 1, ends included. ORF2 to ORF1297 have been identified via homology analyses as well as via analyses of potential ORF start sites, as discussed in the examples below. It is to be understood that each identified ORF of the invention comprises a nucleotide sequence that spans the contiguous nucleotide sequence from the ORF stop codon immediately 3' to the stop codon of the preceding ORF and through the 5' codon to the next stop codon of SEQ ID No.:1 in-frame to the ORF nucleotide sequence. Table 2, *infra*, lists the beginning, end and potential start site of each of ORFs 1-1297. In one embodiment, the ORF comprises the contiguous nucleotide sequence spanning from the potential ORF start site downstream (that is, 3') to the ORF stop codon (or the ORF codon immediately adjacent to and upstream of the ORF stop codon). ORF2 to ORF1297 encode the polypeptides of SEQ ID No. 2 to SEQ ID No. 1291 and of SEQ ID No. 6844 to SEQ ID No. 6849, respectively.

Upon introduction of minor frameshifts, certain individual ORFs can comprise larger

"combined" ORFs. A list of such putative "combined" ORFs is shown in Table 3, below. For example, a combined ORF can comprise ORF 25, ORF 26 and ORF 27, including intervening in-frame, nucleotide sequences. The order of ORFs (5' to 3'), within each "combined" ORF is as listed. It is to be understood that when ORF2 to ORF1297 are referred to herein, such reference is also meant to include "combined" ORFs. Polypeptide sequences encoded by such "combined" ORFs are also part of the present invention.

**Table 3**

- ORF 25, ORF 26, ORF 27;  
10 ORF 28, ORF 29, ORF 30;  
ORF 31, ORF 32;  
ORF 33, ORF 35;  
ORF 466, ORF 467;  
ORF 468, ORF 469;  
15 ORF 477, ORF 476, ORF 474;  
ORF 480, ORF 482;  
ORF 483, ORF 485, ORF 486, ORF 500;  
ORF 503, ORF 504, ORF 505;  
ORF 506, ORF 507;  
20 ORF 1211, ORF 647;  
ORF 1286, ORF 1039;  
ORF 691, ORF 690;  
ORF 105, ORF 106;  
ORF 170, ORF 171; ORF 394, ORF 393;  
25 ORF 453, ORF 452, ORF 451;  
ORF 526, ORF 525;  
ORF 757, ORF 756, ORF 755;  
ORF 856, ORF 855;  
ORF 958, ORF 957;  
30 ORF 915, ORF 914, ORF 913;  
ORF 543, ORF 544;  
ORF 1266, ORF 380;  
ORF 745, ORF 744;  
ORF 777, ORF 776;  
35 ORF 343, ORF 1297, and representative fragments.

Table 1 also depicts the results of homology searches that compared the sequences of the

polypeptides encoded by each of the ORFs to sequences present in public published databases. It is understood that those polypeptides listed in Table 1 as exhibiting greater than about 95% identity to a polypeptide present in a publicly disclosed database are not considered part of the present invention; likewise in this embodiment, those nucleotide sequences encoding such polypeptides are not considered part of the invention. In another embodiment, it is understood that those polypeptides listed in Table 1 as exhibiting greater than about 99% identity to a polypeptide present in a publicly disclosed database are not considered part of the invention; likewise, in this embodiment, those nucleotide sequences encoding such polypeptides are not considered part of the invention.

The invention also relates to the nucleotide sequences characterized in that they comprise  
10 a nucleotide sequence chosen from:

- a) an ORF2 to ORF1297, a "combined" ORF nucleotide sequence, the nucleotide sequence of the genomic DNA contained within ATCC Deposit No. \_\_\_\_\_ or the nucleotide sequence of a clone insert in ATCC Deposit No. \_\_\_\_\_ according to the invention;
- b) a homologous nucleotide sequence exhibiting at least 80% identity across an entire ORF2 to  
15 ORF1297 nucleotide sequence according to the invention or as defined in a);
- c) a polynucleotide sequence that hybridizes to ORF2 to ORF1297 under conditions of high or intermediate stringency as described below:

(i) By way of example and not limitation, procedures using conditions of high stringency are as follows: Prehybridization of filters containing DNA is carried out for 8 h to overnight at 65EC in  
20 buffer composed of 6X SSC, 50 mM Tris-HCl (pH 7.5), 1 mM EDTA, 0.02% PVP, 0.02% Ficoll, 0.02% BSA, and 500 µg/ml denatured salmon sperm DNA. Filters are hybridized for 48 h at 65EC, the preferred hybridization temperature, in prehybridization mixture containing 100 µg/ml denatured salmon sperm DNA and 5-20 X 10<sup>6</sup> cpm of <sup>32</sup>P-labeled probe. Alternatively, the hybridization step can be performed at 65EC in the presence of SSC buffer, 1 x SSC corresponding to 0.15M NaCl and  
25 0.05 M Na citrate. Subsequently, filter washes can be done at 37EC for 1 h in a solution containing 2X SSC, 0.01% PVP, 0.01% Ficoll, and 0.01% BSA, followed by a wash in 0.1X SSC at 50EC for 45 min. Alternatively, filter washes can be performed in a solution containing 2 x SSC and 0.1% SDS, or 0.5 x SSC and 0.1% SDS, or 0.1 x SSC and 0.1% SDS at 68EC for 15 minute intervals. Following the wash steps, the hybridized probes are detectable by autoradiography. Other conditions of high  
30 stringency which may be used are well known in the art and as cited in Sambrook et al., 1989, Molecular Cloning, A Laboratory Manual, Second Edition, Cold Spring Harbor Press, N.Y., pp. 9.47-9.57; and Ausubel et al., 1989, Current Protocols in Molecular Biology, Green Publishing Associates and Wiley Interscience, N.Y. are incorporated herein in their entirety. Preferably, such sequences encode a homolog of a polypeptide encoded by one of ORF2 to ORF1297. In one  
35 embodiment, such sequences encode a *Chlamydia pneumoniae* polypeptide.

(ii) By way of example and not limitation, procedures using conditions of intermediate

stringency are as follows: Filters containing DNA are prehybridized, and then hybridized at a temperature of 60EC in the presence of a 5 x SSC buffer and labeled probe. Subsequently, filters washes are performed in a solution containing 2x SSC at 50EC and the hybridized probes are detectable by autoradiography. Other conditions of intermediate stringency which may be used are well known in the art and as cited in Sambrook et al., 1989, Molecular Cloning, A Laboratory Manual, Second Edition, Cold Spring Harbor Press, N.Y., pp. 9.47-9.57; and Ausubel et al., 1989, Current Protocols in Molecular Biology, Green Publishing Associates and Wiley Interscience, N.Y. are incorporated herein in their entirety. Preferably, such sequences encode a homolog of a polypeptide encoded by one of ORF2 to ORF1297. In one embodiment, such sequences encode a *Chlamydia pneumoniae* polypeptide.

- d) complementary or RNA nucleotide sequence corresponding to an ORF2 to ORF1297 sequence according to the invention or as defined in a), b) or c);
- e) a nucleotide sequence of a representative fragment of an ORF2 to ORF1297 sequence according to the invention or of a sequence as defined in a), b), c) or d);
- 15 f) a nucleotide sequence capable of being obtained from an ORF2 to ORF1297 sequence according to the invention or as defined in a), b), c), d) or e); and
- g) a modified nucleotide sequence of an ORF2 to ORF1297 sequence according to the invention or as defined in a), b), c), d), e) or f);

As regards the homology with the ORF2 to ORF1297 nucleotide sequences, the homologous sequences exhibiting a percentage identity with the bases of one of the ORF2 to ORF1297 nucleotide sequences of at least 80%, preferably 90% and 95%, are preferred. Such homologous sequences are identified routinely via, for example, the algorithms described above and in the examples below. The said homologous sequences correspond to the homologous sequences as defined above and may comprise, for example, the sequences corresponding to the ORF sequences of a bacterium belonging to the *Chlamydia* family, including the species *Chlamydia trachomatis*, *Chlamydia psittaci* and *Chlamydia pecorum* mentioned above, as well as the sequences corresponding to the ORF sequences of a bacterium belonging to the variants of the species *Chlamydia pneumoniae*. These homologous sequences may likewise correspond to variations linked to mutations within the same species or between species and may correspond in particular to truncations, substitutions, deletions and/or additions of at least one nucleotide. The said homologous sequences may also correspond to variations linked to the degeneracy of the genetic code or to a bias in the genetic code which is specific to the family, to the species or to the variant and which are likely to be present in *Chlamydia*.

The invention comprises polypeptides encoded by a nucleotide sequence according to the invention, preferably by a representative fragment of the sequence SEQ ID No. 1 and corresponding to an ORF sequence, in particular the *Chlamydia pneumoniae* polypeptides, characterized in that they are chosen from the sequences SEQ ID No. 2 to SEQ ID No. 1291 or SEQ ID No. 6844 to SEQ ID No.

6849 and representative fragments thereof. However, the invention is not limited to polypeptides encoded by ORFs in SEQ ID No. 1 and its corresponding ORF sequences, but encompasses polypeptides of strain variants, polymorphisms, allelic variants, and mutants.

Thus, the invention also comprises the polypeptides characterized in that they comprise a  
5 polypeptide chosen from:

- a) a polypeptide encoded by a polynucleotide sequence in SEQ ID No. 1 (e.g., any polypeptide encoded by a polynucleotide sequence corresponding to ORF2 to ORF1297 and/or representative fragments thereof) according to the invention;
- b) a polypeptide homologous to a polypeptide according to the invention, or as defined in a);
- 10 c) a polypeptide encoded by a polynucleotide sequence that hybridizes to SEQ ID No. 1 or ORF2 to ORF1297 under high or intermediate stringency as described below:

(i) By way of example and not limitation, procedures using conditions of high stringency are as follows: Prehybridization of filters containing DNA is carried out for 8 h to overnight at 65EC in buffer composed of 6X SSC, 50 mM Tris-HCl (pH 7.5), 1 mM EDTA, 0.02% PVP, 0.02% Ficoll,  
15 0.02% BSA, and 500 µg/ml denatured salmon sperm DNA. Filters are hybridized for 48 h at 65EC, the preferred hybridization temperature, in prehybridization mixture containing 100 µg/ml denatured salmon sperm DNA and  $5-20 \times 10^6$  cpm of  $^{32}\text{P}$ -labeled probe. Alternatively, the hybridization step can be performed at 65EC in the presence of SSC buffer, 1 x SSC corresponding to 0.15M NaCl and 0.05 M Na citrate. Subsequently, filter washes can be done at 37EC for 1 h in a solution containing  
20 2X SSC, 0.01% PVP, 0.01% Ficoll, and 0.01% BSA, followed by a wash in 0.1X SSC at 50EC for 45 min. Alternatively, filter washes can be performed in a solution containing 2 x SSC and 0.1% SDS, or 0.5 x SSC and 0.1% SDS, or 0.1 x SSC and 0.1% SDS at 68EC for 15 minute intervals. Following the wash steps, the hybridized probes are detectable by autoradiography. Other conditions of high stringency which may be used are well known in the art and as cited in Sambrook et al., 1989,  
25 Molecular Cloning, A Laboratory Manual, Second Edition, Cold Spring Harbor Press, N.Y., pp. 9.47-9.57; and Ausubel et al., 1989, Current Protocols in Molecular Biology, Green Publishing Associates and Wiley Interscience, N.Y. are incorporated herein in their entirety. Preferably such polypeptide represents a homolog of a polypeptide encoded by ORF2 to ORF1297. Preferably, such sequences encode a homolog of a polypeptide encoded by one of ORF2 to ORF1297. In one embodiment, such  
30 sequences encode a *Chlamydia pneumoniae* polypeptide.

(ii) By way of example and not limitation, procedures using conditions of intermediate stringency are as follows: Filters containing DNA are prehybridized, and then hybridized at a temperature of 60EC in the presence of a 5 x SSC buffer and labeled probe. Subsequently, filters washes are performed in a solution containing 2x SSC at 50EC and the hybridized probes are  
35 detectable by autoradiography. Other conditions of intermediate stringency which may be used are well known in the art and as cited in Sambrook et al., 1989, Molecular Cloning, A Laboratory Manual,



Second Edition, Cold Spring Harbor Press, N.Y., pp. 9.47-9.57; and Ausubel et al., 1989, Current Protocols in Molecular Biology, Green Publishing Associates and Wiley Interscience, N.Y. are incorporated herein in their entirety. Preferably, such sequences encode a homolog of a polypeptide encoded by one of ORF2 to ORF1297. In one embodiment, such sequences encode a *Chlamydia*

5 *pneumoniae* polypeptide.

d) a fragment of at least 5 amino acids of a polypeptide according to the invention, or as defined in a), b) or c);

e) a biologically active fragment of a polypeptide according to the invention, or as defined in a), b), c) or d); and

10 f) a modified polypeptide of a polypeptide according to the invention, as defined in a), b), c), d) or e).

In the present description, the terms polypeptide, peptide and protein are interchangeable.

It should be understood that the invention does not relate to the polypeptides in natural form, that is to say that they are not taken in their natural environment but that they may have been  
15 isolated or obtained by purification from natural sources, or alternatively obtained by genetic recombination, or else by chemical synthesis and that they may, in this case, comprise nonnatural amino acids, as will be described below.

Homologous polypeptide will be understood to designate the polypeptides exhibiting, in relation to the natural polypeptide, certain modifications such as in particular a deletion, addition or  
20 substitution of at least one amino acid, a truncation, an extension, a chimeric fusion, and/or a mutation, or polypeptides exhibiting post-translational modifications. Among the homologous polypeptides, those whose amino acid sequence exhibits at least 80%, preferably 90%, homology or identity with the amino acid sequences of the polypeptides according to the invention are preferred. In the case of a substitution, one or more consecutive or nonconsecutive amino acids are replaced by "equivalent"  
25 amino acids. The expression "equivalent" amino acid is intended here to designate any amino acid capable of being substituted for one of the amino acids in the basic structure without, however, essentially modifying the biological activities of the corresponding peptides and as will be defined later.

Protein and/or nucleic acid sequence homologies may be evaluated using any of the  
30 variety of sequence comparison algorithms and programs known in the art. Such algorithms and programs include, but are by no means limited to, TBLASTN, BLASTP, FASTA, TFASTA, and CLUSTALW (Pearson and Lipman, 1988, *Proc. Natl. Acad. Sci. USA* 85(8):2444-2448; Altschul et al., 1990, *J. Mol. Biol.* 215(3):403-410; Thompson et al., 1994, *Nucleic Acids Res.* 22(2):4673-4680; Higgins et al., 1996, *Methods Enzymol.* 266:383-402; Altschul et al., 1990, *J. Mol. Biol.* 215(3):403-  
35 410; Altschul et al., 1993, *Nature Genetics* 3:266-272).

In a particularly preferred embodiment, protein and nucleic acid sequence homologies are evaluated using the Basic Local Alignment Search Tool ("BLAST") which is well known in the art (see,

*e.g.*, Karlin and Altschul, 1990, *Proc. Natl. Acad. Sci. USA* 87:2267-2268; Altschul *et al.*, 1990, *J. Mol. Biol.* 215:403-410; Altschul *et al.*, 1993, *Nature Genetics* 3:266-272; Altschul *et al.*, 1997, *Nuc. Acids Res.* 25:3389-3402). In particular, five specific BLAST programs are used to perform the following task:

- 5 (1)BLASTP and BLAST3 compare an amino acid query sequence against a protein sequence database;
- (2)BLASTN compares a nucleotide query sequence against a nucleotide sequence database;
- (3)BLASTX compares the six-frame conceptual translation products of a query  
10 nucleotide sequence (both strands) against a protein sequence database;
- (4)TBLASTN compares a query protein sequence against a nucleotide sequence database translated in all six reading frames (both strands); and
- (5)TBLASTX compares the six-frame translations of a nucleotide query sequence against the six-frame translations of a nucleotide sequence database.

15 The BLAST programs identify homologous sequences by identifying similar segments, which are referred to herein as "high-scoring segment pairs," between a query amino or nucleic acid sequence and a test sequence which is preferably obtained from a protein or nucleic acid sequence database. High-scoring segment pairs are preferably identified (*i.e.*, aligned) by means of a scoring matrix, many of which are known in the art. Preferably, the scoring matrix used is the BLOSUM62 matrix (Gonnet  
20 *et al.*, 1992, *Science* 256:1443-1445; Henikoff and Henikoff, 1993, *Proteins* 17:49-61). Less preferably, the PAM or PAM250 matrices may also be used (see, *e.g.*, Schwartz and Dayhoff, eds., 1978, *Matrices for Detecting Distance Relationships: Atlas of Protein Sequence and Structure*, Washington: National Biomedical Research Foundation)

The BLAST programs evaluate the statistical significance of all high-scoring segment  
25 pairs identified, and preferably selects those segments which satisfy a user-specified threshold of significance, such as a user-specified percent homology. Preferably, the statistical significance of a high-scoring segment pair is evaluated using the statistical significance formula of Karlin (see, *e.g.*, Karlin and Altschul, 1990, *Proc. Natl. Acad. Sci. USA* 87:2267-2268).

Equivalent amino acids may be determined either based on their structural homology  
30 with the amino acids for which they are substituted, or on results of comparative tests of biological activity between the various polypeptides which may be carried out.

By way of example, there may be mentioned the possibilities of substitutions which may be carried out without resulting in a substantial modification of the biological activity of the corresponding modified polypeptides; the replacements, for example, of leucine with valine or  
35 isoleucine, of aspartic acid with glutamic acid, of glutamine with asparagine, of arginine with lysine, and the like, the reverse substitutions naturally being feasible under the same conditions.

The homologous polypeptides also correspond to the polypeptides encoded by the

homologous nucleotide sequences as defined above and thus comprise in the present definition the mutated polypeptides or polypeptides corresponding to inter- or intra-species variations which may exist in *Chlamydia*, and which correspond in particular to truncations, substitutions, deletions and/or additions of at least one amino acid residue.

5 Biologically active fragment of a polypeptide according to the invention will be understood to designate in particular a polypeptide fragment, as defined below, exhibiting at least one of the characteristics of the polypeptides according to the invention, in particular in that it is:

- capable of eliciting an immune response directed against *Chlamydia pneumoniae*; and/or
- capable of being recognized by an antibody specific for a polypeptide according to the invention;

10 and/or

- capable of binding to a polypeptide or to a nucleotide sequence of *Chlamydia pneumoniae*; and/or
- capable of modulating, regulating, inducing or inhibiting the expression of a gene of *Chlamydia pneumoniae* or one of its associated microorganisms, and/or capable of modulating the replication cycle of *Chlamydia pneumoniae* or one of its associated microorganisms in the

15 host cell and/or organism; and/or

- capable of generally exerting an even partial physiological activity, such as for example a structural activity (cellular envelope, ribosome), an enzymatic (metabolic) activity, a transport activity, an activity in the secretion or in the virulence.

A polypeptide fragment according to the invention is understood to designate a  
20 polypeptide comprising a minimum of 5 amino acids, preferably 10 amino acids or preferably 15 amino acids. It is to be understood that such fragments refer only to portions of polypeptides encoded by ORF2 to ORF1297 that are not currently listed in a publicly available database.

The polypeptide fragments according to the invention may correspond to isolated or purified fragments which are naturally present in *Chlamydia pneumoniae* or which are secreted by  
25 *Chlamydia pneumoniae*, or may correspond to fragments capable of being obtained by cleaving the said polypeptide with a proteolytic enzyme, such as trypsin or chymotrypsin or collagenase, or with a chemical reagent, such as cyanogen bromide (CNBr) or alternatively by placing the said polypeptide in a highly acidic environment, for example at pH 2.5. Such polypeptide fragments may be equally well prepared by chemical synthesis, using hosts transformed with an expression vector according to  
30 the invention containing a nucleic acid allowing the expression of the said fragments, placed under the control of appropriate elements for regulation and/or expression.

"Modified polypeptide" of a polypeptide according to the invention is understood to designate a polypeptide obtained by genetic recombination or by chemical synthesis as will be described below, exhibiting at least one modification in relation to the normal sequence. These  
35 modifications may in particular affect amino acids responsible for a specificity or for the efficiency of the activity, or responsible for the structural conformation, for the charge or for the hydrophobicity, and for the capacity for multimerization and for membrane insertion of the polypeptide according to

the invention. It is thus possible to create polypeptides with an equivalent, an increased or a reduced activity, and with an equivalent, a narrower or a broader specificity. Among the modified polypeptides, there may be mentioned the polypeptides in which up to 5 amino acids may be modified, truncated at the N- or C-terminal end, or alternatively deleted, or else added.

5 As is indicated, the modifications of the polypeptide may have in particular the objective:

- of making it capable of modulating, regulating, inhibiting or inducing the expression of a gene of *Chlamydia*, in particular of *Chlamydia pneumoniae* and its variants, or one of its associated microorganisms, and/or capable of modulating the replication cycle of *Chlamydia*, in particular of *Chlamydia pneumoniae* and its variants, or one of its associated microorganisms,  
10 in the host cell and/or organism,
- of allowing its use in methods of biosynthesis or of biodegradation, or its incorporation into vaccine compositions,
- of modifying its bioavailability as a compound for therapeutic use.

The said modified polypeptides may also be used on any cell or microorganism for which  
15 the said modified polypeptides will be capable of modulating, regulating, inhibiting or inducing gene expression, or of modulating the growth or the replication cycle of the said cell or of the said microorganism. The methods allowing demonstration of the said modulations on eukaryotic or prokaryotic cells are well known to persons skilled in the art. The said cells or microorganisms will be chosen, in particular, from tumour cells or infectious microorganisms and the said modified  
20 polypeptides may be used for the prevention or treatment of pathologies linked to the presence of the said cells or of the said microorganisms. It is also clearly understood that the nucleotide sequences encoding the said modified polypeptides may be used for the said modulations, for example by the intermediacy of vectors according to the invention and which are described below, so as to prevent or to treat the said pathologies.

25 The above modified polypeptides may be obtained using combinatory chemistry, in which it is possible to systematically vary portions of the polypeptide before testing them on models, cell cultures or microorganisms for example, so as to select the compounds which are the most active or which exhibit the desired properties.

Chemical synthesis also has the advantage of being able to use:

- 30
- nonnatural amino acids, or
  - nonpeptide bonds.

Accordingly, in order to extend the life of the polypeptides according to the invention, it may be advantageous to use nonnatural amino acids, for example in the D form, or alternatively amino acid analogues, in particular sulphur-containing forms for example.

35 Finally, the structure of the polypeptides according to the invention, its homologous or modified forms, as well as the corresponding fragments may be integrated into chemical structures of the polypeptide type and the like. Accordingly, it may be advantageous to provide at the N- and C-

terminal ends compounds which are not recognized by proteases.

Also forming part of the invention are the nucleotide sequences encoding a polypeptide according to the invention. Described below are ORF nucleotide sequences encoding polypeptides exhibiting particularly preferable characteristics. For each group of preferred ORFS described below, 5 it is to be understood that in addition to the individual ORFs listed, in instances wherein such ORFS are present as part of "combined" ORFs, the "combined" ORFs are also to be included within the preferred group.

More particularly, the subject of the invention is nucleotide sequences, characterized in that they encode a polypeptide of the cellular envelope, preferably of the outer cellular envelope of 10 *Chlamydia pneumoniae* or one of its representative fragments, such as for example the predominant proteins of the outer membrane, the adhesion proteins or the proteins entering into the composition of the *Chlamydia* wall. Among these sequences, the sequences comprising a nucleotide sequence chosen from the following sequences are most preferred:

ORF15; ORF25; ORF26; ORF27; ORF28; ORF29; ORF30; ORF31; ORF32; ORF33; ORF35;  
15 ORF68; ORF124; ORF275; ORF291; ORF294; ORF327; ORF342; ORF364; ORF374; ORF380;  
ORF414; ORF439; ORF466; ORF467; ORF468; ORF469; ORF470; ORF472; ORF474; ORF476;  
ORF477; ORF478; ORF479; ORF480; ORF482; ORF485; ORF500; ORF501; ORF503; ORF504;  
ORF505; ORF506; ORF520; ORF578; ORF580; ORF581; ORF595; ORF596; ORF597; ORF737;  
ORF830; ORF834; ORF836; ORF893; ORF917; ORF932; ORF976; ORF1035; ORF1045; ORF1090  
20 and one of their representative fragments.

The structure of the cytoplasmic membranes and of the wall of bacteria is dependent on the associated proteins. The structure of the cytoplasmic membrane makes it impermeable to water, to water-soluble substances and to small-sized molecules (ions, small inorganic molecules, peptides or proteins). To enter into or to interfere with a cell or a bacterium, a ligand must establish a special 25 relationship with a protein anchored in the cytoplasmic membrane (the receptor). These proteins which are anchored on the membrane play an important role in metabolism since they control the exchanges in the bacterium. These exchanges apply to molecules of interest for the bacterium (small molecules such as sugars and small peptides) as well as undesirable molecules for the bacterium such as antibiotics or heavy metals.

30 The double lipid layer structure of the membrane requires the proteins which are inserted therein to have hydrophobic domains of about twenty amino acids forming an alpha helix. Predominantly hydrophobic and potentially transmembrane regions may be predicted from the primary sequence of the proteins, itself deduced from the nucleotide sequence. The presence of one or more putative transmembrane domains raises the possibility for a protein to be associated with the 35 cytoplasmic membrane and to be able to play an important metabolic role therein or alternatively for the protein thus exposed to be able to exhibit potentially protective epitopes.

If the proteins inserted into the membrane exhibit several transmembrane domains

capable of interacting with one another via electrostatic bonds, it then becomes possible for these proteins to form pores which go across the membrane which becomes permeable for a number of substances. It should be noted that proteins which do not have transmembrane domains may also be anchored by the intermediacy of fatty acids in the cytoplasmic membrane, it being possible for the breaking of the bond between the protein and its anchor in some cases to be responsible for the release of the peptide outside the bacterium.

Preferably, the invention relates to the nucleotide sequences according to the invention, characterized in that they encode a *Chlamydia pneumoniae* transmembrane polypeptide or one of its representative fragments, having between 1 and 3 transmembrane domains and in that they comprise a nucleotide sequence chosen from the following sequences:

ORF2; ORF3; ORF6; ORF9; ORF10; ORF11; ORF13; ORF14; ORF16; ORF18; ORF19; ORF20; ORF21; ORF22; ORF25; ORF27; ORF28; ORF29; ORF30; ORF31; ORF32; ORF33; ORF34; ORF35; ORF37; ORF39; ORF41; ORF42; ORF44; ORF45; ORF46; ORF47; ORF48; ORF49; ORF50; ORF53; ORF54; ORF56; ORF57; ORF59; ORF60; ORF61; ORF62; ORF63; ORF64; ORF65; ORF66; ORF69; ORF72; ORF73; ORF74; ORF76; ORF77; ORF78; ORF79; ORF80; ORF82; ORF84; ORF85; ORF86; ORF88; ORF89; ORF90; ORF91; ORF92; ORF93; ORF95; ORF96; ORF98; ORF99; ORF100; ORF101; ORF102; ORF103; ORF104; ORF105; ORF106; ORF107; ORF108; ORF114; ORF117; ORF118; ORF122; ORF123; ORF124; ORF125; ORF129; ORF130; ORF131; ORF132; ORF133; ORF134; ORF135; ORF137; ORF138; ORF139; ORF140; ORF141; ORF142; ORF143; ORF145; ORF146; ORF147; ORF150; ORF151; ORF152; ORF156; ORF157; ORF158; ORF159; ORF160; ORF161; ORF162; ORF164; ORF166; ORF167; ORF170; ORF173; ORF175; ORF176; ORF178; ORF179; ORF180; ORF182; ORF183; ORF184; ORF185; ORF186; ORF187; ORF188; ORF189; ORF190; ORF191; ORF192; ORF194; ORF195; ORF196; ORF197; ORF198; ORF199; ORF200; ORF201; ORF202; ORF205; ORF207; ORF208; ORF209; ORF210; ORF212; ORF215; ORF219; ORF220; ORF224; ORF226; ORF227; ORF228; ORF231; ORF232; ORF233; ORF234; ORF235; ORF236; ORF238; ORF239; ORF240; ORF241; ORF242; ORF244; ORF247; ORF251; ORF252; ORF253; ORF255; ORF256; ORF257; ORF258; ORF260; ORF262; ORF263; ORF266; ORF267; ORF268; ORF269; ORF270; ORF273; ORF274; ORF276; ORF278; ORF279; ORF280; ORF281; ORF282; ORF283; ORF284; ORF286; ORF287; ORF289; ORF290; ORF291; ORF293; ORF294; ORF297; ORF304; ORF305; ORF307; ORF308; ORF309; ORF310; ORF311; ORF313; ORF314; ORF315; ORF316; ORF318; ORF319; ORF320; ORF321; ORF322; ORF323; ORF324; ORF325; ORF326; ORF331; ORF332; ORF336; ORF338; ORF339; ORF341; ORF344; ORF345; ORF346; ORF350; ORF352; ORF353; ORF356; ORF357; ORF358; ORF359; ORF360; ORF362; ORF365; ORF366; ORF367; ORF370; ORF372; ORF373; ORF376; ORF377; ORF378; ORF379; ORF381; ORF382; ORF383; ORF384; ORF385; ORF386; ORF387; ORF390; ORF392; ORF393; ORF394; ORF396; ORF398; ORF399; ORF400; ORF404; ORF408; ORF410; ORF411; ORF413; ORF416; ORF417; ORF418; ORF420; ORF422; ORF424; ORF427;

ORF428; ORF429; ORF430; ORF431; ORF433; ORF434; ORF437; ORF440; ORF441; ORF442;  
ORF443; ORF444; ORF445; ORF447; ORF450; ORF451; ORF452; ORF455; ORF456; ORF459;  
ORF460; ORF461; ORF462; ORF463; ORF464; ORF465; ORF467; ORF469; ORF471; ORF474;  
ORF475; ORF476; ORF477; ORF479; ORF482; ORF483; ORF484; ORF485; ORF486; ORF487;  
5 ORF488; ORF491; ORF493; ORF494; ORF497; ORF498; ORF499; ORF503; ORF508; ORF509;  
ORF510; ORF512; ORF514; ORF515; ORF516; ORF517; ORF518; ORF520; ORF521; ORF523;  
ORF525; ORF527; ORF528; ORF529; ORF530; ORF531; ORF533; ORF534; ORF535; ORF536;  
ORF537; ORF540; ORF541; ORF543; ORF544; ORF545; ORF546; ORF548; ORF549; ORF551;  
ORF553; ORF554; ORF555; ORF556; ORF557; ORF558; ORF559; ORF560; ORF562; ORF563;  
10 ORF564; ORF565; ORF566; ORF569; ORF571; ORF573; ORF576; ORF577; ORF581; ORF583;  
ORF584; ORF585; ORF586; ORF588; ORF591; ORF592; ORF594; ORF595; ORF596; ORF597;  
ORF599; ORF600; ORF603; ORF605; ORF608; ORF614; ORF615; ORF620; ORF621; ORF622;  
ORF623; ORF624; ORF625; ORF629; ORF630; ORF631; ORF633; ORF634; ORF637; ORF642;  
ORF644; ORF645; ORF647; ORF648; ORF652; ORF654; ORF655; ORF657; ORF658; ORF659;  
15 ORF660; ORF661; ORF664; ORF665; ORF666; ORF667; ORF670; ORF671; ORF672; ORF673;  
ORF674; ORF676; ORF679; ORF681; ORF684; ORF687; ORF688; ORF689; ORF690; ORF693;  
ORF694; ORF695; ORF696; ORF697; ORF698; ORF699; ORF700; ORF701; ORF703; ORF705;  
ORF706; ORF707; ORF708; ORF710; ORF712; ORF715; ORF716; ORF717; ORF718; ORF719;  
ORF721; ORF722; ORF723; ORF725; ORF726; ORF727; ORF728; ORF729; ORF730; ORF731;  
20 ORF733; ORF736; ORF737; ORF738; ORF740; ORF741; ORF742; ORF743; ORF747; ORF748;  
ORF750; ORF752; ORF754; ORF755; ORF756; ORF757; ORF759; ORF760; ORF761; ORF762;  
ORF763; ORF764; ORF765; ORF766; ORF767; ORF768; ORF772; ORF774; ORF775; ORF777;  
ORF781; ORF783; ORF788; ORF791; ORF792; ORF793; ORF794; ORF795; ORF796; ORF797;  
ORF798; ORF799; ORF802; ORF803; ORF806; ORF807; ORF808; ORF809; ORF810; ORF811;  
25 ORF813; ORF814; ORF815; ORF816; ORF817; ORF819; ORF820; ORF821; ORF823; ORF824;  
ORF827; ORF829; ORF830; ORF831; ORF833; ORF834; ORF835; ORF837; ORF844; ORF845;  
ORF846; ORF847; ORF848; ORF849; ORF850; ORF851; ORF852; ORF854; ORF855; ORF856;  
ORF857; ORF859; ORF860; ORF862; ORF865; ORF866; ORF868; ORF869; ORF870; ORF871;  
ORF872; ORF874; ORF877; ORF878; ORF879; ORF880; ORF881; ORF882; ORF884; ORF885;  
30 ORF888; ORF889; ORF890; ORF891; ORF892; ORF894; ORF895; ORF896; ORF897; ORF899;  
ORF900; ORF902; ORF903; ORF904; ORF905; ORF909; ORF910; ORF912; ORF913; ORF914;  
ORF915; ORF917; ORF918; ORF919; ORF921; ORF923; ORF924; ORF926; ORF927; ORF928;  
ORF929; ORF930; ORF931; ORF937; ORF938; ORF939; ORF941; ORF943; ORF948; ORF951;  
ORF952; ORF953; ORF958; ORF960; ORF963; ORF964; ORF965; ORF968; ORF970; ORF974;  
35 ORF975; ORF977; ORF979; ORF980; ORF981; ORF983; ORF984; ORF985; ORF987; ORF989;  
ORF992; ORF993; ORF997; ORF998; ORF999; ORF1001; ORF1002; ORF1004; ORF1005;  
ORF1009; ORF1013; ORF1014; ORF1015; ORF1016; ORF1019; ORF1021; ORF1023; ORF1024;

ORF1029; ORF1031; ORF1033; ORF1034; ORF1039; ORF1041; ORF1042; ORF1045;  
 ORF1047; ORF1049; ORF1051; ORF1052; ORF1053; ORF1054; ORF1056; ORF1059; ORF1061;  
 ORF1062; ORF1063; ORF1064; ORF1065; ORF1067; ORF1075; ORF1077; ORF1078; ORF1079;  
 ORF1080; ORF1081; ORF1089; ORF1095; ORF1097; ORF1098; ORF1099; ORF1101; ORF1102;  
 5 ORF1103; ORF1106; ORF1107; ORF1108; ORF1109; ORF1110; ORF1113; ORF1116; ORF1118;  
 ORF1119; ORF1121; ORF1123; ORF1124; ORF1126; ORF1128; ORF1130; ORF1131; ORF1133;  
 ORF1134; ORF1136; ORF1137 and one of their representative fragments.

Preferably, the invention relates to the nucleotide sequences according to the invention,  
 characterized in that they encode a *Chlamydia pneumoniae* transmembrane polypeptide or one of its  
 10 representative fragments, having between 4 and 6 transmembrane domains and in that they comprise a  
 nucleotide sequence chosen from the following sequences:

ORF5; ORF7; ORF8; ORF15; ORF36; ORF38; ORF51; ORF55; ORF58; ORF67; ORF70; ORF81;  
 ORF97; ORF110; ORF111; ORF115; ORF119; ORF126; ORF128; ORF148; ORF155; ORF163;  
 ORF165; ORF168; ORF169; ORF171; ORF172; ORF174; ORF177; ORF181; ORF193; ORF203;  
 15 ORF213; ORF214; ORF216; ORF217; ORF221; ORF222; ORF225; ORF229; ORF243; ORF246;  
 ORF248; ORF254; ORF261; ORF285; ORF288; ORF292; ORF296; ORF298; ORF299; ORF301;  
 ORF303; ORF317; ORF328; ORF329; ORF351; ORF354; ORF355; ORF364; ORF371; ORF374;  
 ORF375; ORF391; ORF395; ORF401; ORF403; ORF405; ORF409; ORF414; ORF419; ORF421;  
 ORF423; ORF425; ORF438; ORF448; ORF453; ORF458; ORF466; ORF468; ORF470; ORF480;  
 20 ORF489; ORF490; ORF496; ORF501; ORF504; ORF505; ORF506; ORF511; ORF513; ORF519;  
 ORF526; ORF532; ORF538; ORF539; ORF547; ORF550; ORF561; ORF568; ORF570; ORF574;  
 ORF578; ORF579; ORF580; ORF582; ORF589; ORF593; ORF598; ORF601; ORF604; ORF610;  
 ORF613; ORF617; ORF626; ORF632; ORF635; ORF638; ORF640; ORF641; ORF646; ORF649;  
 ORF650; ORF651; ORF686; ORF711; ORF724; ORF732; ORF734; ORF744; ORF745; ORF749;  
 25 ORF751; ORF769; ORF770; ORF771; ORF773; ORF776; ORF779; ORF780; ORF785; ORF787;  
 ORF789; ORF801; ORF805; ORF812; ORF822; ORF825; ORF826; ORF839; ORF841; ORF843;  
 ORF853; ORF861; ORF875; ORF876; ORF886; ORF893; ORF898; ORF906; ORF907; ORF908;  
 ORF920; ORF922; ORF925; ORF933; ORF935; ORF936; ORF944; ORF946; ORF947; ORF954;  
 ORF959; ORF961; ORF966; ORF967; ORF972; ORF978; ORF995; ORF996; ORF1000; ORF1003;  
 30 ORF1010; ORF1011; ORF1012; ORF1017; ORF1020; ORF1030; ORF1036; ORF1038; ORF1043;  
 ORF1046; ORF1048; ORF1050; ORF1058; ORF1071; ORF1073; ORF1084; ORF1085; ORF1086;  
 ORF1087; ORF1091; ORF1092; ORF1094; ORF1096; ORF1100; ORF1104; ORF1111; ORF1112;  
 ORF1114; ORF1117; ORF1122; ORF1125 and one of their representative fragments.

Preferably, the invention also relates to the nucleotide sequences according to the  
 35 invention, characterized in that they encode a *Chlamydia pneumoniae* transmembrane polypeptide or  
 one of its representative fragments, having at least 7 transmembrane domains and in that they  
 comprise a nucleotide sequence chosen from the following sequences:



ORF17; ORF52; ORF68; ORF83; ORF87; ORF109; ORF112; ORF113; ORF120; ORF121;  
 ORF127; ORF153; ORF204; ORF211; ORF218; ORF223; ORF275; ORF277; ORF295; ORF300;  
 ORF302; ORF306; ORF327; ORF335; ORF342; ORF343; ORF347; ORF349; ORF361; ORF363;  
 ORF369; ORF380; ORF388; ORF389; ORF397; ORF415; ORF432; ORF439; ORF446; ORF449;  
 5 ORF472; ORF478; ORF500; ORF522; ORF524; ORF567; ORF575; ORF602; ORF606; ORF609;  
 ORF636; ORF639; ORF643; ORF653; ORF668; ORF692; ORF702; ORF704; ORF713; ORF720;  
 ORF778; ORF784; ORF800; ORF836; ORF838; ORF842; ORF864; ORF867; ORF883; ORF901;  
 ORF916; ORF932; ORF934; ORF940; ORF942; ORF950; ORF956; ORF971; ORF973; ORF976;  
 ORF988; ORF994; ORF1018; ORF1028; ORF1035; ORF1037; ORF1044; ORF1055; ORF1057;  
 10 ORF1068; ORF1069; ORF1070; ORF1072; ORF1082; ORF1088; ORF1105; ORF1132; ORF1135  
 and one of their representative fragments.

Preferably, the invention relates to the nucleotide sequences according to the invention,  
 characterized in that they encode a *Chlamydia pneumoniae* surface exposed polypeptide (e.g., an outer  
 membrane protein) or one of its representative fragments, said nucleotide sequences comprising a  
 15 nucleotide sequence chosen from the following sequences:

ORF 15, ORF 25, ORF 26, ORF 27, ORF 28, ORF 29, ORF 30, ORF 31, ORF 32, ORF 33, ORF 35,  
 ORF 36, ORF 1257, ORF 280, ORF 291, ORF 314, ORF 354, ORF 380, ORF 1266, ORF 466, ORF  
 467, ORF 468, ORF 469, ORF 470, ORF 472, ORF 474, ORF 476, ORF 477, ORF 478, ORF 479,  
 ORF 480, ORF 482, ORF 483, ORF 485, ORF 486, ORF 500, ORF 501, ORF 503, ORF 504, ORF  
 20 505, ORF 506, ORF 507, ORF 1268, ORF 1269, ORF 543, ORF 544, ORF 578, ORF 579, ORF 580,  
 ORF 581, ORF 595, ORF 596, ORF 597, ORF 1271, ORF 633, ORF 637, ORF 699, ORF 706, ORF  
 737, ORF 744, ORF 1273, ORF 751, ORF 775, ORF 776, ORF 777, ORF 793, ORF 815, ORF 830,  
 ORF 1221, ORF 849, ORF 851, ORF 852, ORF 874, ORF 891, ORF 922, ORF 940, ORF 1231, ORF  
 1281, ORF 1035, ORF 1079, ORF 1087, ORF 1108, and one of their representative fragments.

25 Preferably, the invention relates to the nucleotide sequences according to the invention,  
 characterized in that they encode a *Chlamydia pneumoniae* lipoprotein or one of its representative  
 fragments, said nucleotide sequences comprising a nucleotide sequence chosen from the following  
 sequences:

ORF 3, ORF 10, ORF 11, ORF 16, ORF 1254, ORF 1255, ORF 38, ORF 1256, ORF 62, ORF 85,  
 30 ORF 1258, ORF 115, ORF 1151, ORF 151, ORF 1259, ORF 173, ORF 1261, ORF 186, ORF 194,  
 ORF 205, ORF 214, ORF 216, ORF 217, ORF 238, ORF 1177, ORF 280, ORF 291, ORF 317, ORF  
 327, ORF 354, ORF 364, ORF 367, ORF 414, ORF 432, ORF 1192, ORF 460, ORF 1267, ORF 1268,  
 ORF 520, ORF 536, ORF 1270, ORF 576, ORF 597, ORF 603, ORF 609, ORF 637, ORF 1272, ORF  
 652, ORF 1213, ORF 699, ORF 705, ORF 706, ORF 708, ORF 711, ORF 727, ORF 1274, ORF 800,  
 35 ORF 814, ORF 825, ORF 829, ORF 830, ORF 831, ORF 844, ORF 849, ORF 1275, ORF 1276, ORF  
 1277, ORF 872, ORF 878, ORF 880, ORF 891, ORF 892, ORF 1278, ORF 1279, ORF 1280, ORF  
 941, ORF 942, ORF 1282, ORF 1283, ORF 952, ORF 988, ORF 998, ORF 1009, ORF 1285, ORF

1235, ORF 1028, ORF 1056, ORF 1070, ORF 1287, ORF 1087, ORF 1288, ORF 1289, ORF 1098, ORF 1246, ORF 1291, ORF 1108, ORF 1109, ORF 1112, ORF 1133, and one of their representative fragments.

Preferably, the invention relates to the nucleotide sequences according to the invention, characterized in that they encode a *Chlamydia pneumoniae* polypeptide involved in lipopolysaccharide (LPS) biosynthesis, said nucleotide sequences comprising a nucleotide sequence chosen from the following sequences: ORF 316, ORF 564, ORF 610, ORF 647, ORF 1211, ORF 688, ORF 924, and one of their representative fragments.

Preferably the invention relates to additional LPS-related nucleotide sequences according to the invention, characterized in that they encode:

(a) a *Chlamydia pneumoniae* KDO (3-deoxy-D-manno-octulosonic acid)-related polypeptide or one of its representative fragments, said nucleotide sequences comprising a nucleotide sequence chosen from the following sequences: ORF 177, ORF 1156, ORF 245, ORF 767, and one of their representative fragments;

(b) a *Chlamydia pneumoniae* phosphomannomutase-related polypeptide or one of its representative fragments, said nucleotide sequences comprising a nucleotide sequence chosen from the following sequences: ORF 74, and one of its representative fragments;

(c) a *Chlamydia pneumoniae* phosphoglucomutase-related polypeptide or one of its representative fragments, said nucleotide sequences comprising a nucleotide sequence chosen from the following sequences: ORF 1286, ORF 1039, and one of their representative fragments; and

(d) a *Chlamydia pneumoniae* lipid A component-related polypeptide or one of its representative fragments, said nucleotide sequences comprising a nucleotide sequence chosen from the following sequences: ORF 689, ORF 690, ORF 691, ORF 1037, and one of their representative fragments.

Preferably, the invention relates to the nucleotide sequences according to the invention, characterized in that they encode a *Chlamydia pneumoniae* polypeptide containing RGD (Arg-Gly-Asp) attachment sites or one of its representative fragments.

(a) RGD-containing proteins that are outer membrane proteins, are more likely to play a role in cell attachment. ORFs that encoded a protein containing an RGD sequence and also were classified as outer membrane proteins are ORF 468 and its representative fragments.

(b) An RGD-encoding ORF that showed homology to *cds1*, *cds2*, and *copN* type III virulence loci in *Chlamydia psittaci* (Hsia, R. et al. (1997), Type III secretion genes identify a putative virulence locus of *Chlamydia*. Molecular Microbiology 25:351-359) is ORF 350, and its representative fragments.

(c) The outer membrane of *Chlamydia* is made of cysteine-rich proteins that form a network of both intra and inter molecular disulfide links. This contributes to the integrity of the membrane since *Chlamydia* lacks the peptidoglycan layer that other gram-negative bacteria have. Cysteine-rich proteins that have the RGD sequence are also considered to be potential vaccine candidates. Cysteine-rich proteins were defined as proteins that had more than 3.0% cysteine in their primary amino acid sequence, above the mean genomic ORF cysteine content. The corresponding ORFs are: ORF 1290, ORF 1294, ORF 1296, and one of their representative fragments.

(d) The outer membrane of *Chlamydia* may also contain small proteins that have cysteines in their N- and C-terminus that may contribute to the network formed by disulfide linkages. These proteins may be anchored in the outer membrane via their N-terminus and may have their C-terminus exposed, which then can interact with the host cells. Alternatively, these proteins may be anchored in the outer membrane via both N-and C-terminus and may have regions in the middle that may be exposed which can in turn interact with the host cells. ORFs encoding polypeptides that contain cysteines in their first 30 amino acids and also contain an RGD sequence are: ORF 105, ORF 106, ORF 114, ORF 170, ORF 171, ORF 1264, ORF 268, ORF 1265, ORF 350, ORF 393, ORF 394, ORF 451, ORF 452, ORF 453, ORF 473, ORF 499, ORF 515, ORF 519, ORF 525, ORF 526, ORF 538, ORF 611, ORF 645, ORF 686, ORF 700, ORF 746, ORF 755, ORF 756, ORF 757, ORF 789, ORF 814, ORF 855, ORF 856, ORF 878, ORF 957, ORF 958, ORF 989, ORF 1290, and one of their representative fragments.

(e) RGD-containing ORFs homologous to RGD-containing ORFs from *Chlamydia trachomatis* are:

ORF 114, ORF 468, ORF 755, ORF 756, ORF 757, ORF 855, ORF 856, ORF 905, ORF 913, ORF 914, ORF 915, and one of their representative fragments.

Preferably, the invention relates to the nucleotide sequences according to the invention, characterized in that they encode a *Chlamydia pneumoniae* Type III or other, non-type III secreted polypeptide or one of its representative fragments, said nucleotide sequences comprising a nucleotide sequence chosen from the following sequences:

ORF 25, ORF 28, ORF 29, ORF 33, ORF 308, ORF 309, ORF 343, ORF 344, ORF 345, ORF 367, ORF 414, ORF 415, ORF 480, ORF 550, ORF 579, ORF 580, ORF 581, ORF 597, ORF 699, ORF 744, ORF 751, ORF 776, ORF 866, ORF 874, ORF 883, ORF 884, ORF 888, ORF 891, ORF 1293,

and one of their representative fragments.

Preferably, the invention relates to the nucleotide sequences according to the invention, characterized in that they encode a *Chlamydia pneumoniae* cell wall anchored surface polypeptide or one of its representative fragments, said nucleotide sequences comprising a nucleotide sequence  
5 chosen from the following sequences: ORF 267, ORF 271, ORF 419, ORF 590, ORF 932, ORF 1292, ORF 1295, and one of their representative fragments.

Preferably, the invention relates to the nucleotide sequences according to the invention, characterized in that they encode *Chlamydia pneumoniae* polypeptides not found in *Chlamydia trachomatis* (Blastp.  $P > e^{-10}$ ), said nucleotide sequences comprising a nucleotide sequence chosen from  
10 the following sequences: ORF 7, ORF 8, ORF 9, ORF 16, ORF 17, ORF 18, ORF 19, ORF 20, ORF 21, ORF 22, ORF 1254, ORF 23, ORF 1255, ORF 24, ORF 1139, ORF 1140, ORF 46, ORF 47, ORF 51, ORF 60, ORF 1256, ORF 61, ORF 62, ORF 63, ORF 64, ORF 1257, ORF 65, ORF 66, ORF 67, ORF 68, ORF 1143, ORF 1145, ORF 83, ORF 84, ORF 1146, ORF 85, ORF 86, ORF 87, ORF 1258, ORF 116, ORF 117, ORF 125, ORF 1148, ORF 143, ORF 1150, ORF 1151, ORF 144, ORF 145, ORF  
15 147, ORF 148, ORF 149, ORF 150, ORF 152, ORF 1259, ORF 162, ORF 166, ORF 1154, ORF 167, ORF 1261, ORF 1156, ORF 1157, ORF 178, ORF 179, ORF 1158, ORF 182, ORF 183, ORF 184, ORF 185, ORF 1159, ORF 186, ORF 1160, ORF 187, ORF 188, ORF 189, ORF 190, ORF 1161, ORF 1162, ORF 191, ORF 192, ORF 194, ORF 195, ORF 1163, ORF 196, ORF 201, ORF 202, ORF 209, ORF 212, ORF 221, ORF 224, ORF 1167, ORF 226, ORF 227, ORF 228, ORF 229, ORF 230, ORF  
20 231, ORF 232, ORF 1169, ORF 1170, ORF 1171, ORF 234, ORF 235, ORF 236, ORF 1172, ORF 243, ORF 251, ORF 252, ORF 1176, ORF 253, ORF 255, ORF 254, ORF 256, ORF 1177, ORF 1178, ORF 262, ORF 263, ORF 1264, ORF 278, ORF 279, ORF 1180, ORF 280, ORF 290, ORF 291, ORF 292, ORF 296, ORF 1181, ORF 297, ORF 298, ORF 300, ORF 1265, ORF 322, ORF 324, ORF 325, ORF 370, ORF 1186, ORF 371, ORF 372, ORF 1187, ORF 373, ORF 378, ORF 1266, ORF 382, ORF  
25 383, ORF 384, ORF 385, ORF 386, ORF 1188, ORF 1189, ORF 391, ORF 392, ORF 398, ORF 400, ORF 403, ORF 1191, ORF 423, ORF 435, ORF 445, ORF 450, ORF 1193, ORF 456, ORF 460, ORF 461, ORF 465, ORF 1196, ORF 471, ORF 473, ORF 475, ORF 481, ORF 484, ORF 487, ORF 488, ORF 489, ORF 490, ORF 491, ORF 492, ORF 493, ORF 494, ORF 495, ORF 496, ORF 497, ORF 498, ORF 499, ORF 502, ORF 1267, ORF 1268, ORF 508, ORF 510, ORF 509, ORF 512, ORF 515,  
30 ORF 519, ORF 1197, ORF 521, ORF 1198, ORF 522, ORF 524, ORF 528, ORF 534, ORF 537, ORF 1269, ORF 1270, ORF 548, ORF 551, ORF 557, ORF 1201, ORF 1203, ORF 562, ORF 566, ORF 593, ORF 595, ORF 600, ORF 1271, ORF 604, ORF 611, ORF 612, ORF 614, ORF 616, ORF 625, ORF 627, ORF 628, ORF 629, ORF 631, ORF 641, ORF 1272, ORF 648, ORF 1212, ORF 663, ORF 685, ORF 707, ORF 714, ORF 715, ORF 716, ORF 717, ORF 722, ORF 746, ORF 1273, ORF 761,  
35 ORF 764, ORF 770, ORF 1217, ORF 783, ORF 1274, ORF 803, ORF 815, ORF 1220, ORF 835, ORF 1221, ORF 844, ORF 845, ORF 846, ORF 847, ORF 848, ORF 849, ORF 850, ORF 851, ORF 1275, ORF 852, ORF 862, ORF 1276, ORF 1277, ORF 873, ORF 1223, ORF 892, ORF 919, ORF 1225,

ORF 1278, ORF 926, ORF 1228, ORF 1229, ORF 1230, ORF 1279, ORF 1281, ORF 1282, ORF 1283, ORF 948, ORF 950, ORF 949, ORF 951, ORF 980, ORF 982, ORF 1233, ORF 999, ORF 1000, ORF 1001, ORF 1002, ORF 1008, ORF 1285, ORF 1235, ORF 1016, ORF 1019, ORF 1027, ORF 1036, ORF 1241, ORF 1048, ORF 1049, ORF 1050, ORF 1053, ORF 1054, ORF 1064, ORF 1076, ORF 1091, ORF 1288, ORF 1093, ORF 1289, ORF 1101, ORF 1103, ORF 1245, ORF 1246, ORF 1247, ORF 1290, ORF 1291, ORF 1115, ORF 1116, ORF 1118, ORF 1120, ORF 1249, ORF 1121, ORF 1250, ORF 1126, ORF 1251, ORF 1127, ORF 1128, ORF 1130, ORF 1129, ORF 1131, ORF 1136, ORF 1253, ORF 1292, ORF 1294, ORF 1295, ORF 1296, and one of their representative fragments.

10 Preferably, the invention also relates to the nucleotide sequences according to the invention, characterized in that they encode a *Chlamydia pneumoniae* polypeptide or one of its representative fragments which is involved in the intermediate metabolism, in particular in the metabolism of sugars and/or of cofactors, such as for example triose phosphate isomerase or pyruvate kinase, and in that they comprise a nucleotide sequence chosen from the following sequences:

15 ORF2; ORF55; ORF56; ORF69; ORF75; ORF80; ORF100; ORF110; ORF114; ORF120; ORF121; ORF157; ORF160; ORF161; ORF172; ORF180; ORF181; ORF198; ORF200; ORF225; ORF248; ORF249; ORF276; ORF277; ORF318; ORF319; ORF320; ORF323; ORF331; ORF347; ORF375; ORF376; ORF381; ORF393; ORF394; ORF395; ORF396; ORF409; ORF446; ORF447; ORF448; ORF449; ORF513; ORF516; ORF571; ORF647; ORF662; ORF697; ORF718; ORF793; ORF794; ORF808; ORF809; ORF838; ORF839; ORF840; ORF853; ORF854; ORF918; ORF923; ORF929; ORF931; ORF938; ORF939; ORF958; ORF959; ORF960; ORF966; ORF995; ORF1021; ORF1040; ORF1041; ORF1042; ORF1085; ORF1100; ORF1102; ORF1117; ORF1118; ORF1119; ORF1120; ORF1135 and one of their representative fragments.

25 Preferably, the invention also relates to the nucleotide sequences according to the invention, characterized in that they encode a *Chlamydia pneumoniae* polypeptide or one of its representative fragments which is involved in the intermediate metabolism of nucleotides or nucleic acids, such as for example CTP synthetase or GMP synthetase, and in that they comprise a nucleotide sequence chosen from the following sequences:

30 ORF77; ORF78; ORF138; ORF189; ORF190; ORF233; ORF246; ORF338; ORF412; ORF421; ORF438; ORF607; ORF648; ORF657; ORF740; ORF783; ORF967; ORF989; ORF990; ORF992; ORF1011; ORF1058; ORF1059; ORF1073; ORF1074 and one of their representative fragments.

Preferably, the invention also relates to the nucleotide sequences according to the invention, characterized in that they encode a *Chlamydia pneumoniae* polypeptide or one of its representative fragments which is involved in the metabolism of nucleic acids, such as for example DNA polymerases or DNA topoisomerases, and in that they comprise a nucleotide sequence chosen from the following sequences:

ORF14; ORF59; ORF70; ORF71; ORF97; ORF113; ORF137; ORF141; ORF169; ORF285; ORF287;

ORF288; ORF313; ORF326; ORF358; ORF411; ORF443; ORF548; ORF569; ORF601; ORF651;  
ORF654; ORF658; ORF659; ORF664; ORF665; ORF694; ORF698; ORF704; ORF760; ORF762;  
ORF763; ORF786; ORF787; ORF788; ORF801; ORF802; ORF812; ORF819; ORF822; ORF870;  
ORF897; ORF898; ORF902; ORF908; ORF916; ORF954; ORF955; ORF961; ORF983; ORF996;  
5 ORF1007; ORF1012; ORF1013; ORF1014; ORF1015; ORF1038; ORF1137 and one of their  
representative fragments.

Preferably, the invention also relates to the nucleotide sequences according to the  
invention, characterized in that they encode a *Chlamydia pneumoniae* polypeptide or one of its  
representative fragments which is involved in the metabolism of amino acids or polypeptides, such as  
10 for example serine hydroxymethyl transferase or the proteins which load amino acids onto transfer  
RNAs, and in that they comprise a nucleotide sequence chosen from the following sequences:  
ORF99; ORF111; ORF127; ORF134; ORF140; ORF174; ORF175; ORF176; ORF353; ORF377;  
ORF404; ORF523; ORF539; ORF559; ORF561; ORF586; ORF598; ORF609; ORF636; ORF687;  
ORF700; ORF701; ORF759; ORF790; ORF857; ORF861; ORF904; ORF936; ORF952; ORF962;  
15 ORF963; ORF964; ORF965; ORF991; ORF1003; ORF1004; ORF1005; ORF1018; ORF1067;  
ORF1110; ORF1111; ORF1112; ORF1114; ORF1121; ORF1122; ORF1123; ORF1124; ORF1125  
and one of their representative fragments.

Preferably, the invention also relates to the nucleotide sequences according to the  
invention, characterized in that they encode a *Chlamydia pneumoniae* polypeptide or one of its  
20 representative fragments which is involved in the metabolism of polypeptides, such as for example  
protein kinases or proteases, and in that they comprise a nucleotide sequence chosen from the  
following sequences:  
ORF4; ORF44; ORF45; ORF48; ORF54; ORF112; ORF130; ORF155; ORF163; ORF212; ORF257;  
ORF307; ORF343; ORF405; ORF416; ORF458; ORF540; ORF541; ORF542; ORF543; ORF544;  
25 ORF560; ORF594; ORF652; ORF699; ORF723; ORF747; ORF817; ORF827; ORF871; ORF909;  
ORF910; ORF911; ORF912; ORF1023; ORF1051; ORF1052; ORF1081 and one of their  
representative fragments.

Preferably, the invention also relates to the nucleotide sequences according to the  
invention, characterized in that they encode a *Chlamydia pneumoniae* polypeptide or one of its  
30 representative fragments which is involved in the metabolism of fatty acids, such as for example  
succinyl-CoA-synthesizing proteins or phosphatidylserine synthetase, and in that they comprise a  
nucleotide sequence chosen from the following sequences:  
ORF76; ORF284; ORF308; ORF309; ORF310; ORF311; ORF312; ORF425; ORF433; ORF565;  
ORF688; ORF690; ORF691; ORF767; ORF797; ORF894; ORF895; ORF994; ORF1020; ORF1030;  
35 ORF1033; ORF1034; ORF1046; ORF1047; ORF1057 and one of their representative fragments.

Preferably, the invention also relates to the nucleotide sequences according to the  
invention, characterized in that they encode a *Chlamydia pneumoniae* polypeptide or one of its

representative fragments which is involved in the synthesis of the wall, such as for example KDO transferase, and the proteins responsible for the attachment of certain sugars onto the exposed proteins, and in that they comprise a nucleotide sequence chosen from the following sequences:

ORF49; ORF50; ORF177; ORF178; ORF245; ORF610; ORF972; ORF974; ORF978; ORF1037 and  
5 one of their representative fragments.

Preferably, the invention also relates to the nucleotide sequences according to the invention, characterized in that they encode a *Chlamydia pneumoniae* polypeptide or one of its representative fragments which is involved in the transcription, translation and/or maturation process, such as for example initiation factors, RNA polymerases or certain chaperone proteins, and in that  
10 they comprise a nucleotide sequence chosen from the following sequences:

ORF90; ORF92; ORF131; ORF151; ORF199; ORF333; ORF334; ORF336; ORF379; ORF589;  
ORF590; ORF619; ORF630; ORF649; ORF739; ORF741; ORF806; ORF821; ORF843; ORF968;  
ORF971; ORF1061 and one of their representative fragments.

Preferably, the invention also relates to the nucleotide sequences according to the  
15 invention, characterized in that they encode a *Chlamydia pneumoniae* ribosomal polypeptide or one of its representative fragments, such as for example the ribosomal proteins L21, L27 and S10, and in that they comprise a nucleotide sequence chosen from the following sequences:

ORF93; ORF94; ORF95; ORF136; ORF259; ORF332; ORF348; ORF583; ORF584; ORF588;  
ORF591; ORF592; ORF663; ORF666; ORF667; ORF669; ORF670; ORF671; ORF672; ORF673;  
20 ORF674; ORF675; ORF676; ORF677; ORF678; ORF679; ORF680; ORF681; ORF683; ORF684;  
ORF738; ORF781; ORF1008; ORF1024; ORF1025; ORF1066 and one of their representative fragments.

Preferably, the invention also relates to the nucleotide sequences according to the invention, characterized in that they encode a *Chlamydia pneumoniae* transport polypeptide or one of  
25 its representative fragments, such as for example the proteins for transporting amino acids, sugars and certain oligopeptides, and in that they comprise a nucleotide sequence chosen from the following sequences:

ORF40; ORF41; ORF52; ORF105; ORF106; ORF107; ORF109; ORF133; ORF210; ORF211;  
ORF214; ORF215; ORF216; ORF217; ORF218; ORF219; ORF220; ORF223; ORF242; ORF260;  
30 ORF293; ORF299; ORF366; ORF369; ORF575; ORF602; ORF638; ORF639; ORF640; ORF643;  
ORF653; ORF702; ORF703; ORF724; ORF732; ORF855; ORF856; ORF901; ORF906; ORF933;  
ORF942; ORF1043; ORF1086; ORF1105 and one of their representative fragments.

Preferably, the invention also relates to the nucleotide sequences according to the invention, characterized in that they encode a *Chlamydia pneumoniae* polypeptide or one of its  
35 representative fragments which is involved in the virulence process, such as for example the proteins analogous to the *Escherichia coli* vacB protein, and in that they comprise a nucleotide sequence chosen from the following sequences:

ORF546; ORF550; ORF778; ORF779; ORF886 and one of their representative fragments.

Preferably, the invention also relates to the nucleotide sequences according to the invention, characterized in that they encode a *Chlamydia pneumoniae* polypeptide or one of its representative fragments which is involved in the secretory system and/or which is secreted, such as  
5 for example proteins homologous to proteins in the secretory system of certain bacteria such as the Salmonellae or the Yersiniae, and in that they comprise a nucleotide sequence chosen from the following sequences:

ORF751; ORF874; ORF875; ORF876; ORF883; ORF884; ORF885 and one of their representative fragments.

10 Preferably, the invention also relates to a nucleotide sequence according to the invention, characterized in that they encode a polypeptide specific to *Chlamydia pneumoniae* or one of its representative fragments (with a Blast E value of  $>10^{-5}$ ), and in that they comprise a nucleotide sequence chosen from the following sequences:

ORF7; ORF8; ORF17; ORF18; ORF19; ORF20; ORF22; ORF23; ORF24; ORF51; ORF60; ORF63;  
15 ORF65; ORF66; ORF67; ORF83; ORF84; ORF86; ORF87; ORF125; ORF143; ORF144; ORF179;  
ORF182; ORF184; ORF185; ORF187; ORF221; ORF252; ORF254;; ORF278; ORF279; ORF387;  
ORF388; ORF397; ORF1048; ORF1049; ORF1050; ORF1128; ORF1130; ORF1131 and one of their representative fragments.

Also forming part of the invention are polypeptides encoded by the polynucleotides of  
20 the invention, as well as fusion polypeptides comprising such polypeptides. In one embodiment, the polypeptides and fusion polypeptides immunoreact with seropositive serum of an individual infected with *Chlamydia pneumoniae*. For example, described below, are polypeptide sequences exhibiting particularly preferable characteristics. For each group of preferred polypeptides described below, it is to be understood that in addition to the individual polypeptides listed, in instances wherein such  
25 polypeptides are encoded as part of "combined" ORFs, such "combined" polypeptides are also to be included within the preferred group.

The subject of the invention is also a polypeptide according to the invention, characterized in that it is a polypeptide of the cellular envelope, preferably of the outer cellular envelope, of *Chlamydia pneumoniae* or one of its representative fragments. According to the  
30 invention, the said polypeptide is preferably chosen from the polypeptides having the following sequences:

SEQ ID No. 15; SEQ ID No. 25; SEQ ID No. 26; SEQ ID No. 27; SEQ ID No. 28; SEQ ID No. 29;  
SEQ ID No. 30; SEQ ID No. 31; SEQ ID No. 32; SEQ ID No. 33; SEQ ID No. 35; SEQ ID No. 68;  
SEQ ID No. 124; SEQ ID No. 275; SEQ ID No. 291; SEQ ID No. 294; SEQ ID No. 327; SEQ ID  
35 No. 342; SEQ ID No. 364; SEQ ID No. 374; SEQ ID No. 380; SEQ ID No. 414; SEQ ID No. 439;  
SEQ ID No. 466; SEQ ID No. 467; SEQ ID No. 468; SEQ ID No. 469; SEQ ID No. 470; SEQ ID  
No. 472; SEQ ID No. 474; SEQ ID No. 476; SEQ ID No. 477; SEQ ID No. 478; SEQ ID No. 479;



SEQ ID No. 480; SEQ ID No. 482; SEQ ID No. 485; SEQ ID No. 500; SEQ ID No. 501; SEQ ID No. 503; SEQ ID No. 504; SEQ ID No. 505; SEQ ID No. 506; SEQ ID No. 520; SEQ ID No. 578; SEQ ID No. 580; SEQ ID No. 581; SEQ ID No. 595; SEQ ID No. 596; SEQ ID No. 597; SEQ ID No. 737; SEQ ID No. 830; SEQ ID No. 834; SEQ ID No. 836; SEQ ID No. 893; SEQ ID No. 917; SEQ ID No. 932; SEQ ID No. 976; SEQ ID No. 1035; SEQ ID No. 1045; SEQ ID No. 1090 and one of their representative fragments.

Preferably, the invention relates to a polypeptide according to the invention, characterized in that it is a *Chlamydia pneumoniae* transmembrane polypeptide or one of its representative fragments, having between 1 and 3 transmembrane domains, and in that it is chosen from the polypeptides having the following sequences:

SEQ ID No. 2; SEQ ID No. 3; SEQ ID No. 6; SEQ ID No. 9; SEQ ID No. 10; SEQ ID No. 11; SEQ ID No. 13; SEQ ID No. 14; SEQ ID No. 16; SEQ ID No. 18; SEQ ID No. 19; SEQ ID No. 20; SEQ ID No. 21; SEQ ID No. 22; SEQ ID No. 25; SEQ ID No. 27; SEQ ID No. 28; SEQ ID No. 29; SEQ ID No. 30; SEQ ID No. 31; SEQ ID No. 32; SEQ ID No. 33; SEQ ID No. 34; SEQ ID No. 35; SEQ ID No. 37; SEQ ID No. 39; SEQ ID No. 41; SEQ ID No. 42; SEQ ID No. 44; SEQ ID No. 45; SEQ ID No. 46; SEQ ID No. 47; SEQ ID No. 48; SEQ ID No. 49; SEQ ID No. 50; SEQ ID No. 53; SEQ ID No. 54; SEQ ID No. 56; SEQ ID No. 57; SEQ ID No. 59; SEQ ID No. 60; SEQ ID No. 61; SEQ ID No. 62; SEQ ID No. 63; SEQ ID No. 64; SEQ ID No. 65; SEQ ID No. 66; SEQ ID No. 69; SEQ ID No. 72; SEQ ID No. 73; SEQ ID No. 74; SEQ ID No. 76; SEQ ID No. 77; SEQ ID No. 78; SEQ ID No. 79; SEQ ID No. 80; SEQ ID No. 82; SEQ ID No. 84; SEQ ID No. 85; SEQ ID No. 86; SEQ ID No. 88; SEQ ID No. 89; SEQ ID No. 90; SEQ ID No. 91; SEQ ID No. 92; SEQ ID No. 93; SEQ ID No. 95; SEQ ID No. 96; SEQ ID No. 98; SEQ ID No. 99; SEQ ID No. 100; SEQ ID No. 101; SEQ ID No. 102; SEQ ID No. 103; SEQ ID No. 104; SEQ ID No. 105; SEQ ID No. 106; SEQ ID No. 107; SEQ ID No. 108; SEQ ID No. 114; SEQ ID No. 117; SEQ ID No. 118; SEQ ID No. 122; SEQ ID No. 123; SEQ ID No. 124; SEQ ID No. 125; SEQ ID No. 129; SEQ ID No. 130; SEQ ID No. 131; SEQ ID No. 132; SEQ ID No. 133; SEQ ID No. 134; SEQ ID No. 135; SEQ ID No. 137; SEQ ID No. 138; SEQ ID No. 139; SEQ ID No. 140; SEQ ID No. 141; SEQ ID No. 142; SEQ ID No. 143; SEQ ID No. 145; SEQ ID No. 146; SEQ ID No. 147; SEQ ID No. 150; SEQ ID No. 151; SEQ ID No. 152; SEQ ID No. 156; SEQ ID No. 157; SEQ ID No. 158; SEQ ID No. 159; SEQ ID No. 160; SEQ ID No. 161; SEQ ID No. 162; SEQ ID No. 164; SEQ ID No. 166; SEQ ID No. 167; SEQ ID No. 170; SEQ ID No. 173; SEQ ID No. 175; SEQ ID No. 176; SEQ ID No. 178; SEQ ID No. 179; SEQ ID No. 180; SEQ ID No. 182; SEQ ID No. 183; SEQ ID No. 184; SEQ ID No. 185; SEQ ID No. 186; SEQ ID No. 187; SEQ ID No. 188; SEQ ID No. 189; SEQ ID No. 190; SEQ ID No. 191; SEQ ID No. 192; SEQ ID No. 194; SEQ ID No. 195; SEQ ID No. 196; SEQ ID No. 197; SEQ ID No. 198; SEQ ID No. 199; SEQ ID No. 200; SEQ ID No. 201; SEQ ID No. 202; SEQ ID No. 205; SEQ ID No. 207; SEQ ID No. 208; SEQ ID No. 209; SEQ ID No. 210; SEQ ID No. 212; SEQ ID

No. 215; SEQ ID No. 219; SEQ ID No. 220; SEQ ID No. 224; SEQ ID No. 226; SEQ ID  
No. 227; SEQ ID No. 228; SEQ ID No. 231; SEQ ID No. 232; SEQ ID No. 233; SEQ ID No. 234;  
SEQ ID No. 235; SEQ ID No. 236; SEQ ID No. 238; SEQ ID No. 239; SEQ ID No. 240; SEQ ID  
No. 241; SEQ ID No. 242; SEQ ID No. 244; SEQ ID No. 247; SEQ ID No. 251; SEQ ID No. 252;  
5 SEQ ID No. 253; SEQ ID No. 255; SEQ ID No. 256; SEQ ID No. 257; SEQ ID No. 258; SEQ ID  
No. 260; SEQ ID No. 262; SEQ ID No. 263; SEQ ID No. 266; SEQ ID No. 267; SEQ ID No. 268;  
SEQ ID No. 269; SEQ ID No. 270; SEQ ID No. 273; SEQ ID No. 274; SEQ ID No. 276; SEQ ID  
No. 278; SEQ ID No. 279; SEQ ID No. 280; SEQ ID No. 281; SEQ ID No. 282; SEQ ID No. 283;  
SEQ ID No. 284; SEQ ID No. 286; SEQ ID No. 287; SEQ ID No. 289; SEQ ID No. 290; SEQ ID  
10 No. 291; SEQ ID No. 293; SEQ ID No. 294; SEQ ID No. 297; SEQ ID No. 304; SEQ ID No. 305;  
SEQ ID No. 307; SEQ ID No. 308; SEQ ID No. 309; SEQ ID No. 310; SEQ ID No. 311; SEQ ID  
No. 313; SEQ ID No. 314; SEQ ID No. 315; SEQ ID No. 316; SEQ ID No. 318; SEQ ID No. 319;  
SEQ ID No. 320; SEQ ID No. 321; SEQ ID No. 322; SEQ ID No. 323; SEQ ID No. 324; SEQ ID  
No. 325; SEQ ID No. 326; SEQ ID No. 331; SEQ ID No. 332; SEQ ID No. 336; SEQ ID No. 338;  
15 SEQ ID No. 339; SEQ ID No. 341; SEQ ID No. 344; SEQ ID No. 345; SEQ ID No. 346; SEQ ID  
No. 350; SEQ ID No. 352; SEQ ID No. 353; SEQ ID No. 356; SEQ ID No. 357; SEQ ID No. 358;  
SEQ ID No. 359; SEQ ID No. 360; SEQ ID No. 362; SEQ ID No. 365; SEQ ID No. 366; SEQ ID  
No. 367; SEQ ID No. 370; SEQ ID No. 372; SEQ ID No. 373; SEQ ID No. 376; SEQ ID No. 377;  
SEQ ID No. 378; SEQ ID No. 379; SEQ ID No. 381; SEQ ID No. 382; SEQ ID No. 383; SEQ ID  
20 No. 384; SEQ ID No. 385; SEQ ID No. 386; SEQ ID No. 387; SEQ ID No. 390; SEQ ID No. 392;  
SEQ ID No. 393; SEQ ID No. 394; SEQ ID No. 396; SEQ ID No. 398; SEQ ID No. 399; SEQ ID  
No. 400; SEQ ID No. 404; SEQ ID No. 408; SEQ ID No. 410; SEQ ID No. 411; SEQ ID No. 413;  
SEQ ID No. 416; SEQ ID No. 417; SEQ ID No. 418; SEQ ID No. 420; SEQ ID No. 422; SEQ ID  
No. 424; SEQ ID No. 427; SEQ ID No. 428; SEQ ID No. 429; SEQ ID No. 430; SEQ ID No. 431;  
25 SEQ ID No. 433; SEQ ID No. 434; SEQ ID No. 437; SEQ ID No. 440; SEQ ID No. 441; SEQ ID  
No. 442; SEQ ID No. 443; SEQ ID No. 444; SEQ ID No. 445; SEQ ID No. 447; SEQ ID No. 450;  
SEQ ID No. 451; SEQ ID No. 452; SEQ ID No. 455; SEQ ID No. 456; SEQ ID No. 459; SEQ ID  
No. 460; SEQ ID No. 461; SEQ ID No. 462; SEQ ID No. 463; SEQ ID No. 464; SEQ ID No. 465;  
SEQ ID No. 467; SEQ ID No. 469; SEQ ID No. 471; SEQ ID No. 474; SEQ ID No. 475; SEQ ID  
30 No. 476; SEQ ID No. 477; SEQ ID No. 479; SEQ ID No. 482; SEQ ID No. 483; SEQ ID No. 484;  
SEQ ID No. 485; SEQ ID No. 486; SEQ ID No. 487; SEQ ID No. 488; SEQ ID No. 491; SEQ ID  
No. 493; SEQ ID No. 494; SEQ ID No. 497; SEQ ID No. 498; SEQ ID No. 499; SEQ ID No. 503;  
SEQ ID No. 508; SEQ ID No. 509; SEQ ID No. 510; SEQ ID No. 512; SEQ ID No. 514; SEQ ID  
No. 515; SEQ ID No. 516; SEQ ID No. 517; SEQ ID No. 518; SEQ ID No. 520; SEQ ID No. 521;  
35 SEQ ID No. 523; SEQ ID No. 525; SEQ ID No. 527; SEQ ID No. 528; SEQ ID No. 529; SEQ ID  
No. 530; SEQ ID No. 531; SEQ ID No. 533; SEQ ID No. 534; SEQ ID No. 535; SEQ ID No. 536;  
SEQ ID No. 537; SEQ ID No. 540; SEQ ID No. 541; SEQ ID No. 543; SEQ ID No. 544; SEQ ID

No. 545; SEQ ID No. 546; SEQ ID No. 548; SEQ ID No. 549; SEQ ID No. 551; SEQ ID No. 553; SEQ ID No. 554; SEQ ID No. 555; SEQ ID No. 556; SEQ ID No. 557; SEQ ID No. 558; SEQ ID No. 559; SEQ ID No. 560; SEQ ID No. 562; SEQ ID No. 563; SEQ ID No. 564; SEQ ID No. 565; SEQ ID No. 566; SEQ ID No. 569; SEQ ID No. 571; SEQ ID No. 573; SEQ ID No. 576;  
5 SEQ ID No. 577; SEQ ID No. 581; SEQ ID No. 583; SEQ ID No. 584; SEQ ID No. 585; SEQ ID No. 586; SEQ ID No. 588; SEQ ID No. 591; SEQ ID No. 592; SEQ ID No. 594; SEQ ID No. 595; SEQ ID No. 596; SEQ ID No. 597; SEQ ID No. 599; SEQ ID No. 600; SEQ ID No. 603; SEQ ID No. 605; SEQ ID No. 608; SEQ ID No. 614; SEQ ID No. 615; SEQ ID No. 620; SEQ ID No. 621; SEQ ID No. 622; SEQ ID No. 623; SEQ ID No. 624; SEQ ID No. 625; SEQ ID No. 629; SEQ ID  
10 No. 630; SEQ ID No. 631; SEQ ID No. 633; SEQ ID No. 634; SEQ ID No. 637; SEQ ID No. 642; SEQ ID No. 644; SEQ ID No. 645; SEQ ID No. 647; SEQ ID No. 648; SEQ ID No. 652; SEQ ID No. 654; SEQ ID No. 655; SEQ ID No. 657; SEQ ID No. 658; SEQ ID No. 659; SEQ ID No. 660; SEQ ID No. 661; SEQ ID No. 664; SEQ ID No. 665; SEQ ID No. 666; SEQ ID No. 667; SEQ ID No. 670; SEQ ID No. 671; SEQ ID No. 672; SEQ ID No. 673; SEQ ID No. 674; SEQ ID No. 676;  
15 SEQ ID No. 679; SEQ ID No. 681; SEQ ID No. 684; SEQ ID No. 687; SEQ ID No. 688; SEQ ID No. 689; SEQ ID No. 690; SEQ ID No. 693; SEQ ID No. 694; SEQ ID No. 695; SEQ ID No. 696; SEQ ID No. 697; SEQ ID No. 698; SEQ ID No. 699; SEQ ID No. 700; SEQ ID No. 701; SEQ ID No. 703; SEQ ID No. 705; SEQ ID No. 706; SEQ ID No. 707; SEQ ID No. 708; SEQ ID No. 710; SEQ ID No. 712; SEQ ID No. 715; SEQ ID No. 716; SEQ ID No. 717; SEQ ID No. 718; SEQ ID  
20 No. 719; SEQ ID No. 721; SEQ ID No. 722; SEQ ID No. 723; SEQ ID No. 725; SEQ ID No. 726; SEQ ID No. 727; SEQ ID No. 728; SEQ ID No. 729; SEQ ID No. 730; SEQ ID No. 731; SEQ ID No. 733; SEQ ID No. 736; SEQ ID No. 737; SEQ ID No. 738; SEQ ID No. 740; SEQ ID No. 741; SEQ ID No. 742; SEQ ID No. 743; SEQ ID No. 747; SEQ ID No. 748; SEQ ID No. 750; SEQ ID No. 752; SEQ ID No. 754; SEQ ID No. 755; SEQ ID No. 756; SEQ ID No. 757; SEQ ID No. 759;  
25 SEQ ID No. 760; SEQ ID No. 761; SEQ ID No. 762; SEQ ID No. 763; SEQ ID No. 764; SEQ ID No. 765; SEQ ID No. 766; SEQ ID No. 767; SEQ ID No. 768; SEQ ID No. 772; SEQ ID No. 774; SEQ ID No. 775; SEQ ID No. 777; SEQ ID No. 781; SEQ ID No. 783; SEQ ID No. 788; SEQ ID No. 791; SEQ ID No. 792; SEQ ID No. 793; SEQ ID No. 794; SEQ ID No. 795; SEQ ID No. 796; SEQ ID No. 797; SEQ ID No. 798; SEQ ID No. 799; SEQ ID No. 802; SEQ ID No. 803; SEQ ID  
30 No. 806; SEQ ID No. 807; SEQ ID No. 808; SEQ ID No. 809; SEQ ID No. 810; SEQ ID No. 811; SEQ ID No. 813; SEQ ID No. 814; SEQ ID No. 815; SEQ ID No. 816; SEQ ID No. 817; SEQ ID No. 819; SEQ ID No. 820; SEQ ID No. 821; SEQ ID No. 823; SEQ ID No. 824; SEQ ID No. 827; SEQ ID No. 829; SEQ ID No. 830; SEQ ID No. 831; SEQ ID No. 833; SEQ ID No. 834; SEQ ID No. 835; SEQ ID No. 837; SEQ ID No. 844; SEQ ID No. 845; SEQ ID No. 846; SEQ ID No. 847;  
35 SEQ ID No. 848; SEQ ID No. 849; SEQ ID No. 850; SEQ ID No. 851; SEQ ID No. 852; SEQ ID No. 854; SEQ ID No. 855; SEQ ID No. 856; SEQ ID No. 857; SEQ ID No. 859; SEQ ID No. 860; SEQ ID No. 862; SEQ ID No. 865; SEQ ID No. 866; SEQ ID No. 868; SEQ ID No. 869; SEQ ID

No. 870; SEQ ID No. 871; SEQ ID No. 872; SEQ ID No. 874; SEQ ID No. 877; SEQ ID No. 878; SEQ ID No. 879; SEQ ID No. 880; SEQ ID No. 881; SEQ ID No. 882; SEQ ID No. 884; SEQ ID No. 885; SEQ ID No. 888; SEQ ID No. 889; SEQ ID No. 890; SEQ ID No. 891; SEQ ID No. 892; SEQ ID No. 894; SEQ ID No. 895; SEQ ID No. 896; SEQ ID No. 897; SEQ ID No. 899; 5 SEQ ID No. 900; SEQ ID No. 902; SEQ ID No. 903; SEQ ID No. 904; SEQ ID No. 905; SEQ ID No. 909; SEQ ID No. 910; SEQ ID No. 912; SEQ ID No. 913; SEQ ID No. 914; SEQ ID No. 915; SEQ ID No. 917; SEQ ID No. 918; SEQ ID No. 919; SEQ ID No. 921; SEQ ID No. 923; SEQ ID No. 924; SEQ ID No. 926; SEQ ID No. 927; SEQ ID No. 928; SEQ ID No. 929; SEQ ID No. 930; SEQ ID No. 931; SEQ ID No. 937; SEQ ID No. 938; SEQ ID No. 939; SEQ ID No. 941; SEQ ID 10 No. 943; SEQ ID No. 948; SEQ ID No. 951; SEQ ID No. 952; SEQ ID No. 953; SEQ ID No. 958; SEQ ID No. 960; SEQ ID No. 963; SEQ ID No. 964; SEQ ID No. 965; SEQ ID No. 968; SEQ ID No. 970; SEQ ID No. 974; SEQ ID No. 975; SEQ ID No. 977; SEQ ID No. 979; SEQ ID No. 980; SEQ ID No. 981; SEQ ID No. 983; SEQ ID No. 984; SEQ ID No. 985; SEQ ID No. 987; SEQ ID No. 989; SEQ ID No. 992; SEQ ID No. 993; SEQ ID No. 997; SEQ ID No. 998; SEQ ID No. 999; 15 SEQ ID No. 1001; SEQ ID No. 1002; SEQ ID No. 1004; SEQ ID No. 1005; SEQ ID No. 1009; SEQ ID No. 1013; SEQ ID No. 1014; SEQ ID No. 1015; SEQ ID No. 1016; SEQ ID No. 1019; SEQ ID No. 1021; SEQ ID No. 1023; SEQ ID No. 1024; SEQ ID No. 1029; SEQ ID No. 1031; SEQ ID No. 1033; SEQ ID No. 1034; SEQ ID No. 1039; SEQ ID No. 1041; SEQ ID No. 1042; SEQ ID No. 1045; SEQ ID No. 1047; SEQ ID No. 1049; SEQ ID No. 1051; SEQ ID No. 1052; 20 SEQ ID No. 1053; SEQ ID No. 1054; SEQ ID No. 1056; SEQ ID No. 1059; SEQ ID No. 1061; SEQ ID No. 1062; SEQ ID No. 1063; SEQ ID No. 1064; SEQ ID No. 1065; SEQ ID No. 1067; SEQ ID No. 1075; SEQ ID No. 1077; SEQ ID No. 1078; SEQ ID No. 1079; SEQ ID No. 1080; SEQ ID No. 1081; SEQ ID No. 1089; SEQ ID No. 1095; SEQ ID No. 1097; SEQ ID No. 1098; SEQ ID No. 1099; SEQ ID No. 1101; SEQ ID No. 1102; SEQ ID No. 1103; SEQ ID No. 1106; 25 SEQ ID No. 1107; SEQ ID No. 1108; SEQ ID No. 1109; SEQ ID No. 1110; SEQ ID No. 1113; SEQ ID No. 1116; SEQ ID No. 1118; SEQ ID No. 1119; SEQ ID No. 1121; SEQ ID No. 1123; SEQ ID No. 1124; SEQ ID No. 1126; SEQ ID No. 1128; SEQ ID No. 1130; SEQ ID No. 1131; SEQ ID No. 1133; SEQ ID No. 1134; SEQ ID No. 1136; SEQ ID No. 1137 and one of their representative fragments.

30 Preferably, the invention relates to a polypeptide according to the invention, characterized in that it is a *Chlamydia pneumoniae* transmembrane polypeptide or one of its respective fragments, having between 4 and 6 transmembrane domains, and in that it is chosen from the polypeptides having the following sequences:

SEQ ID No. 5; SEQ ID No. 7; SEQ ID No. 8; SEQ ID No. 15; SEQ ID No. 36; SEQ ID No. 38; 35 SEQ ID No. 51; SEQ ID No. 55; SEQ ID No. 58; SEQ ID No. 67; SEQ ID No. 70; SEQ ID No. 81; SEQ ID No. 97; SEQ ID No. 110; SEQ ID No. 111; SEQ ID No. 115; SEQ ID No. 119; SEQ ID No. 126; SEQ ID No. 128; SEQ ID No. 148; SEQ ID No. 155; SEQ ID No. 163; SEQ ID

No. 165; SEQ ID No. 168; SEQ ID No. 169; SEQ ID No. 171; SEQ ID No. 172; SEQ ID No. 174; SEQ ID No. 177; SEQ ID No. 181; SEQ ID No. 193; SEQ ID No. 203; SEQ ID No. 213; SEQ ID No. 214; SEQ ID No. 216; SEQ ID No. 217; SEQ ID No. 221; SEQ ID No. 222; SEQ ID No. 225; SEQ ID No. 229; SEQ ID No. 243; SEQ ID No. 246; SEQ ID No. 248; SEQ ID No. 254;  
5 SEQ ID No. 261; SEQ ID No. 285; SEQ ID No. 288; SEQ ID No. 292; SEQ ID No. 296; SEQ ID No. 298; SEQ ID No. 299; SEQ ID No. 301; SEQ ID No. 303; SEQ ID No. 317; SEQ ID No. 328; SEQ ID No. 329; SEQ ID No. 351; SEQ ID No. 354; SEQ ID No. 355; SEQ ID No. 364; SEQ ID No. 371; SEQ ID No. 374; SEQ ID No. 375; SEQ ID No. 391; SEQ ID No. 395; SEQ ID No. 401; SEQ ID No. 403; SEQ ID No. 405; SEQ ID No. 409; SEQ ID No. 414; SEQ ID No. 419; SEQ ID  
10 No. 421; SEQ ID No. 423; SEQ ID No. 425; SEQ ID No. 438; SEQ ID No. 448; SEQ ID No. 453; SEQ ID No. 458; SEQ ID No. 466; SEQ ID No. 468; SEQ ID No. 470; SEQ ID No. 480; SEQ ID No. 489; SEQ ID No. 490; SEQ ID No. 496; SEQ ID No. 501; SEQ ID No. 504; SEQ ID No. 505; SEQ ID No. 506; SEQ ID No. 511; SEQ ID No. 513; SEQ ID No. 519; SEQ ID No. 526; SEQ ID No. 532; SEQ ID No. 538; SEQ ID No. 539; SEQ ID No. 547; SEQ ID No. 550; SEQ ID No. 561;  
15 SEQ ID No. 568; SEQ ID No. 570; SEQ ID No. 574; SEQ ID No. 578; SEQ ID No. 579; SEQ ID No. 580; SEQ ID No. 582; SEQ ID No. 589; SEQ ID No. 593; SEQ ID No. 598; SEQ ID No. 601; SEQ ID No. 604; SEQ ID No. 610; SEQ ID No. 613; SEQ ID No. 617; SEQ ID No. 626; SEQ ID No. 632; SEQ ID No. 635; SEQ ID No. 638; SEQ ID No. 640; SEQ ID No. 641; SEQ ID No. 646; SEQ ID No. 649; SEQ ID No. 650; SEQ ID No. 651; SEQ ID No. 686; SEQ ID No. 711; SEQ ID  
20 No. 724; SEQ ID No. 732; SEQ ID No. 734; SEQ ID No. 744; SEQ ID No. 745; SEQ ID No. 749; SEQ ID No. 751; SEQ ID No. 769; SEQ ID No. 770; SEQ ID No. 771; SEQ ID No. 773; SEQ ID No. 776; SEQ ID No. 779; SEQ ID No. 780; SEQ ID No. 785; SEQ ID No. 787; SEQ ID No. 789; SEQ ID No. 801; SEQ ID No. 805; SEQ ID No. 812; SEQ ID No. 822; SEQ ID No. 825; SEQ ID No. 826; SEQ ID No. 839; SEQ ID No. 841; SEQ ID No. 843; SEQ ID No. 853; SEQ ID No. 861;  
25 SEQ ID No. 875; SEQ ID No. 876; SEQ ID No. 886; SEQ ID No. 893; SEQ ID No. 898; SEQ ID No. 906; SEQ ID No. 907; SEQ ID No. 908; SEQ ID No. 920; SEQ ID No. 922; SEQ ID No. 925; SEQ ID No. 933; SEQ ID No. 935; SEQ ID No. 936; SEQ ID No. 944; SEQ ID No. 946; SEQ ID No. 947; SEQ ID No. 954; SEQ ID No. 959; SEQ ID No. 961; SEQ ID No. 966; SEQ ID No. 967; SEQ ID No. 972; SEQ ID No. 978; SEQ ID No. 995; SEQ ID No. 996; SEQ ID No. 1000; SEQ ID  
30 No. 1003; SEQ ID No. 1010; SEQ ID No. 1011; SEQ ID No. 1012; SEQ ID No. 1017; SEQ ID No. 1020; SEQ ID No. 1030; SEQ ID No. 1036; SEQ ID No. 1038; SEQ ID No. 1043; SEQ ID No. 1046; SEQ ID No. 1048; SEQ ID No. 1050; SEQ ID No. 1058; SEQ ID No. 1071; SEQ ID No. 1073; SEQ ID No. 1084; SEQ ID No. 1085; SEQ ID No. 1086; SEQ ID No. 1087; SEQ ID No. 1091; SEQ ID No. 1092; SEQ ID No. 1094; SEQ ID No. 1096; SEQ ID No. 1100; SEQ ID  
35 No. 1104; SEQ ID No. 1111; SEQ ID No. 1112; SEQ ID No. 1114; SEQ ID No. 1117; SEQ ID No. 1122; SEQ ID No. 1125 and one of their representative fragments.

Preferably, the invention relates to a polypeptide according to the invention,

characterized in that it is a *Chlamydia pneumoniae* transmembrane polypeptide or one of its representative fragments, having at least 7 transmembrane domains; and in that it is chosen from the polypeptides having the following sequences:

SEQ ID No. 17; SEQ ID No. 52; SEQ ID No. 68; SEQ ID No. 83; SEQ ID No. 87; SEQ ID No. 109;  
 5 SEQ ID No. 112; SEQ ID No. 113; SEQ ID No. 120; SEQ ID No. 121; SEQ ID No. 127; SEQ ID  
 No. 153; SEQ ID No. 204; SEQ ID No. 211; SEQ ID No. 218; SEQ ID No. 223; SEQ ID No. 275;  
 SEQ ID No. 277; SEQ ID No. 295; SEQ ID No. 300; SEQ ID No. 302; SEQ ID No. 306; SEQ ID  
 No. 327; SEQ ID No. 335; SEQ ID No. 342; SEQ ID No. 343; SEQ ID No. 347; SEQ ID No. 349;  
 SEQ ID No. 361; SEQ ID No. 363; SEQ ID No. 369; SEQ ID No. 380; SEQ ID No. 388; SEQ ID  
 10 No. 389; SEQ ID No. 397; SEQ ID No. 415; SEQ ID No. 432; SEQ ID No. 439; SEQ ID No. 446;  
 SEQ ID No. 449; SEQ ID No. 472; SEQ ID No. 478; SEQ ID No. 500; SEQ ID No. 522; SEQ ID  
 No. 524; SEQ ID No. 567; SEQ ID No. 575; SEQ ID No. 602; SEQ ID No. 606; SEQ ID No. 609;  
 SEQ ID No. 636; SEQ ID No. 639; SEQ ID No. 643; SEQ ID No. 653; SEQ ID No. 668; SEQ ID  
 No. 692; SEQ ID No. 702; SEQ ID No. 704; SEQ ID No. 713; SEQ ID No. 720; SEQ ID No. 778;  
 15 SEQ ID No. 784; SEQ ID No. 800; SEQ ID No. 836; SEQ ID No. 838; SEQ ID No. 842; SEQ ID  
 No. 864; SEQ ID No. 867; SEQ ID No. 883; SEQ ID No. 901; SEQ ID No. 916; SEQ ID No. 932;  
 SEQ ID No. 934; SEQ ID No. 940; SEQ ID No. 942; SEQ ID No. 950; SEQ ID No. 956; SEQ ID  
 No. 971; SEQ ID No. 973; SEQ ID No. 976; SEQ ID No. 988; SEQ ID No. 994; SEQ ID No. 1018;  
 SEQ ID No. 1028; SEQ ID No. 1035; SEQ ID No. 1037; SEQ ID No. 1044; SEQ ID No. 1055;  
 20 SEQ ID No. 1057; SEQ ID No. 1068; SEQ ID No. 1069; SEQ ID No. 1070; SEQ ID No. 1072;  
 SEQ ID No. 1082; SEQ ID No. 1088; SEQ ID No. 1105; SEQ ID No. 1132; SEQ ID No. 1135 and  
 one of their representative fragments.

Preferably, the invention relates to a polypeptide according to the invention, in that it is a  
*Chlamydia pneumoniae* surface exposed polypeptide or one of its representative fragments, and in that  
 25 it is chosen from the polypeptides having the following sequences:  
 SEQ ID No. 15, SEQ ID No. 25, SEQ ID No. 26, SEQ ID No. 27, SEQ ID No. 28, SEQ ID No. 29,  
 SEQ ID No. 30, SEQ ID No. 31, SEQ ID No. 32, SEQ ID No. 33, SEQ ID No. 35, SEQ ID No. 36,  
 SEQ ID No. 1257, SEQ ID No. 280, SEQ ID No. 291, SEQ ID No. 314, SEQ ID No. 354, SEQ ID  
 No. 380, SEQ ID No. 1266, SEQ ID No. 466, SEQ ID No. 467, SEQ ID No. 468, SEQ ID No. 469,  
 30 SEQ ID No. 470, SEQ ID No. 472, SEQ ID No. 474, SEQ ID No. 476, SEQ ID No. 477, SEQ ID No.  
 478, SEQ ID No. 479, SEQ ID No. 480, SEQ ID No. 482, SEQ ID No. 483, SEQ ID No. 485, SEQ ID  
 No. 486, SEQ ID No. 500, SEQ ID No. 501, SEQ ID No. 503, SEQ ID No. 504, SEQ ID No. 505,  
 SEQ ID No. 506, SEQ ID No. 507, SEQ ID No. 1268, SEQ ID No. 1269, SEQ ID No. 543, SEQ ID  
 No. 544, SEQ ID No. 578, SEQ ID No. 579, SEQ ID No. 580, SEQ ID No. 581, SEQ ID No. 595,  
 35 SEQ ID No. 596, SEQ ID No. 597, SEQ ID No. 1271, SEQ ID No. 633, SEQ ID No. 637, SEQ ID  
 No. 699, SEQ ID No. 706, SEQ ID No. 737, SEQ ID No. 744, SEQ ID No. 1273, SEQ ID No. 751,  
 SEQ ID No. 775, SEQ ID No. 776, SEQ ID No. 777, SEQ ID No. 793, SEQ ID No. 815, SEQ ID No.

830, SEQ ID No. 1221, SEQ ID No. 849, SEQ ID No. 851, SEQ ID No. 852, SEQ ID No. 874, SEQ ID No. 891, SEQ ID No. 922, SEQ ID No. 940, SEQ ID No. 1231, SEQ ID No. 1281, SEQ ID No. 1035, SEQ ID No. 1079, SEQ ID No. 1087, SEQ ID No. 1108, and one of their representative fragments.

5 Preferably, the invention relates to a polypeptide according to the invention, characterized in that it is a *Chlamydia pneumoniae* lipoprotein or one of its representative fragments, and in that it is chosen from the polypeptides having the following sequences:

SEQ ID No. 3, SEQ ID No. 10, SEQ ID No. 11, SEQ ID No. 16, SEQ ID No. 1254, SEQ ID No. 1255, SEQ ID No. 38, SEQ ID No. 1256, SEQ ID No. 62, SEQ ID No. 85, SEQ ID No. 1258, SEQ ID  
10 No. 115, SEQ ID No. 1151, SEQ ID No. 151, SEQ ID No. 1259, SEQ ID No. 173, SEQ ID No. 1261, SEQ ID No. 186, SEQ ID No. 194, SEQ ID No. 205, SEQ ID No. 214, SEQ ID No. 216, SEQ ID No. 217, SEQ ID No. 238, SEQ ID No. 1177, SEQ ID No. 280, SEQ ID No. 291, SEQ ID No. 317, SEQ ID No. 327, SEQ ID No. 354, SEQ ID No. 364, SEQ ID No. 367, SEQ ID No. 414, SEQ ID No. 432, SEQ ID No. 1192, SEQ ID No. 460, SEQ ID No. 1267, SEQ ID No. 1268, SEQ ID No. 520, SEQ ID  
15 No. 536, SEQ ID No. 1270, SEQ ID No. 576, SEQ ID No. 597, SEQ ID No. 603, SEQ ID No. 609, SEQ ID No. 637, SEQ ID No. 1272, SEQ ID No. 652, SEQ ID No. 1213, SEQ ID No. 699, SEQ ID No. 705, SEQ ID No. 706, SEQ ID No. 708, SEQ ID No. 711, SEQ ID No. 727, SEQ ID No. 1274, SEQ ID No. 800, SEQ ID No. 814, SEQ ID No. 825, SEQ ID No. 829, SEQ ID No. 830, SEQ ID No. 831, SEQ ID No. 844, SEQ ID No. 849, SEQ ID No. 1275, SEQ ID No. 1276, SEQ ID No. 1277, SEQ  
20 ID No. 872, SEQ ID No. 878, SEQ ID No. 880, SEQ ID No. 891, SEQ ID No. 892, SEQ ID No. 1278, SEQ ID No. 1279, SEQ ID No. 1280, SEQ ID No. 941, SEQ ID No. 942, SEQ ID No. 1282, SEQ ID No. 1283, SEQ ID No. 952, SEQ ID No. 988, SEQ ID No. 998, SEQ ID No. 1009, SEQ ID No. 1285, SEQ ID No. 1235, SEQ ID No. 1028, SEQ ID No. 1056, SEQ ID No. 1070, SEQ ID No. 1287, SEQ ID No. 1087, SEQ ID No. 1288, SEQ ID No. 1289, SEQ ID No. 1098, SEQ ID No. 1246, SEQ ID No.  
25 1291, SEQ ID No. 1108, SEQ ID No. 1109, SEQ ID No. 1112, SEQ ID No. 1133, and one of their representative fragments.

Preferably, the invention relates to a polypeptide according to the invention, in that it is a *Chlamydia pneumoniae* polypeptide involved in lipopolysaccharide (LPS) biosynthesis, and in that it is chosen from the polypeptides having the following sequences:

30 SEQ ID No. 316, SEQ ID No. 564, SEQ ID No. 610, SEQ ID No. 647, SEQ ID No. 1211, SEQ ID No. 688, SEQ ID No. 924, and one of their representative fragments.

Preferably, the invention relates to additional LPS-related polypeptides according to the invention, in that it is:

(a) a *Chlamydia pneumoniae* KDO (3-deoxy-D-manno-octylosonic acid)-related  
35 polypeptide or one of its representative fragments, and in that it is chosen from the polypeptides having the following sequences: SEQ ID No. 177, SEQ ID No. 1156, SEQ ID No. 245, SEQ ID No. 767, and one of their representative fragments;

(b) a *Chlamydia pneumoniae* phosphomannomutase-related polypeptide or one of its representative fragments, and in that it is chosen from the polypeptides having the following sequences: SEQ ID No. 74, and its representative fragment;

(c) a *Chlamydia pneumoniae* phosphoglucomutase-related polypeptide or one of its representative fragments, and in that it is chosen from the polypeptides having the following sequences: SEQ ID No. 1286, SEQ ID No. 1039, and its representative fragment; and

(d) a *Chlamydia pneumoniae* lipid A component-related polypeptide or one of its representative fragments, and in that it is chosen from the polypeptides having the following sequences: SEQ ID No. 689, SEQ ID No. 690, SEQ ID No. 691, SEQ ID No. 1037, and one of their representative fragments.

Preferably, the invention relates to a polypeptide according to the invention, in that it is a *Chlamydia pneumoniae* polypeptide or one of its representative fragments that contains an RGD sequence and is also an outer membrane protein, and in that it is chosen from the polypeptides having the following sequences: SEQ ID No. 468 and its representative fragments.

Preferably, the invention relates to a polypeptide according to the invention, in that it is a *Chlamydia pneumoniae* polypeptide or one of its representative fragments that contains an RGD sequence that shows homology to *cds1*, *cds2*, and *copN* type III virulence loci in *Chlamydia Psitacci*, and in that it is chosen from the polypeptides having the following sequences: SEQ ID No. 350 and its representative fragments.

Preferably, the invention relates to a polypeptide according to the invention, in that it is a *Chlamydia pneumoniae* polypeptide or one of its representative fragments that is cysteine-rich and contains RGD sequence, and in that it is chosen from the polypeptides having the following sequences: SEQ ID No. 1290, SEQ ID No. 6846, SEQ ID No. 6848, and one of their representative fragments.

Preferably, the invention relates to a polypeptide according to the invention, in that it is a *Chlamydia pneumoniae* outer membrane polypeptide that contains cysteines in their first 30 amino acids and also contain an RGD sequence, and in that it is chosen from the polypeptides having the following sequences:

SEQ ID No. 105, SEQ ID No. 106, SEQ ID No. 114, SEQ ID No. 170, SEQ ID No. 171, SEQ ID No. 1264, SEQ ID No. 268, SEQ ID No. 1265, SEQ ID No. 350, SEQ ID No. 393, SEQ ID No. 394, SEQ ID No. 451, SEQ ID No. 452, SEQ ID No. 453, SEQ ID No. 473, SEQ ID No. 499, SEQ ID No. 515, SEQ ID No. 519, SEQ ID No. 525, SEQ ID No. 526, SEQ ID No. 538, SEQ ID No. 611, SEQ ID No. 645, SEQ ID No. 686, SEQ ID No. 700, SEQ ID No. 746, SEQ ID No. 755, SEQ ID No. 756, SEQ ID No. 757, SEQ ID No. 789, SEQ ID No. 814, SEQ ID No. 855, SEQ ID No. 856, SEQ ID No. 878, SEQ ID No. 957, SEQ ID No. 958, SEQ ID No. 989, SEQ ID No. 1290, and one of their representative fragments.

Preferably, the invention relates to a polypeptide according to the invention, in that it is a



*Chlamydia pneumoniae* polypeptide or one of its representative fragments that contains RGD sequences homologous to *Chlamydia trachomatis* polypeptides containing RGD sequences, and in that it is chosen from the polypeptides having the following sequences:

SEQ ID No. 114, SEQ ID No. 468, SEQ ID No. 755, SEQ ID No. 756, SEQ ID No. 757, SEQ ID No. 855, SEQ ID No. 856, SEQ ID No. 905, SEQ ID No. 913, SEQ ID No. 914, SEQ ID No. 915, and one of their representative fragments.

Preferably, the invention relates to a polypeptide according to the invention, in that it is a *Chlamydia pneumoniae* Type III and non-Type III secreted polypeptide or one of its representative fragments, and in that it is chosen from the polypeptides having the following sequences:

10 SEQ ID No. 25, SEQ ID No. 28, SEQ ID No. 29, SEQ ID No. 33, SEQ ID No. 308, SEQ ID No. 309, SEQ ID No. 343, SEQ ID No. 344, SEQ ID No. 345, SEQ ID No. 367, SEQ ID No. 414, SEQ ID No. 415, SEQ ID No. 480, SEQ ID No. 550, SEQ ID No. 579, SEQ ID No. 580, SEQ ID No. 581, SEQ ID No. 597, SEQ ID No. 699, SEQ ID No. 744, SEQ ID No. 751, SEQ ID No. 776, SEQ ID No. 866, SEQ ID No. 874, SEQ ID No. 883, SEQ ID No. 884, SEQ ID No. 888, SEQ ID No. 891, SEQ ID No. 6845, and one of their representative fragments.

Preferably, the invention relates to a polypeptide according to the invention, in that it is a *Chlamydia pneumoniae* cell wall anchored surface polypeptide or one of its representative fragments, and in that it is chosen from the polypeptides having the following sequences:

SEQ ID No. 267, SEQ ID No. 271, SEQ ID No. 419, SEQ ID No. 590, SEQ ID No. 932, SEQ ID No. 6844, SEQ ID No. 6847, and one of their representative fragments.

Preferably, the invention relates to a polypeptide according to the invention, in that it is a *Chlamydia pneumoniae* polypeptide or one of its representative fragments not found in *Chlamydia trachomatis* (Blastp  $P > e^{-10}$ ), and in that it is chosen from the polypeptides having the following sequences:

25 SEQ ID No. 7, SEQ ID No. 8, SEQ ID No. 9, SEQ ID No. 16, SEQ ID No. 17, SEQ ID No. 18, SEQ ID No. 19, SEQ ID No. 20, SEQ ID No. 21, SEQ ID No. 22, SEQ ID No. 1254, SEQ ID No. 23, SEQ ID No. 1255, SEQ ID No. 24, SEQ ID No. 1139, SEQ ID No. 1140, SEQ ID No. 46, SEQ ID No. 47, SEQ ID No. 51, SEQ ID No. 60, SEQ ID No. 1256, SEQ ID No. 61, SEQ ID No. 62, SEQ ID No. 63, SEQ ID No. 64, SEQ ID No. 1257, SEQ ID No. 65, SEQ ID No. 66, SEQ ID No. 67, SEQ ID No. 68, 30 SEQ ID No. 1143, SEQ ID No. 1145, SEQ ID No. 83, SEQ ID No. 84, SEQ ID No. 1146, SEQ ID No. 85, SEQ ID No. 86, SEQ ID No. 87, SEQ ID No. 1258, SEQ ID No. 116, SEQ ID No. 117, SEQ ID No. 125, SEQ ID No. 1148, SEQ ID No. 143, SEQ ID No. 1150, SEQ ID No. 1151, SEQ ID No. 144, SEQ ID No. 145, SEQ ID No. 147, SEQ ID No. 148, SEQ ID No. 149, SEQ ID No. 150, SEQ ID No. 152, SEQ ID No. 1259, SEQ ID No. 162, SEQ ID No. 166, SEQ ID No. 1154, SEQ ID No. 167, 35 SEQ ID No. 1261, SEQ ID No. 1156, SEQ ID No. 1157, SEQ ID No. 178, SEQ ID No. 179, SEQ ID No. 1158, SEQ ID No. 182, SEQ ID No. 183, SEQ ID No. 184, SEQ ID No. 185, SEQ ID No. 1159, SEQ ID No. 186, SEQ ID No. 1160, SEQ ID No. 187, SEQ ID No. 188, SEQ ID No. 189, SEQ ID

No. 190, SEQ ID No. 1161, SEQ ID No. 1162, SEQ ID No. 191, SEQ ID No. 192, SEQ ID No. 194, SEQ ID No. 195, SEQ ID No. 1163, SEQ ID No. 196, SEQ ID No. 201, SEQ ID No. 202, SEQ ID No. 209, SEQ ID No. 212, SEQ ID No. 221, SEQ ID No. 224, SEQ ID No. 1167, SEQ ID No. 226, SEQ ID No. 227, SEQ ID No. 228, SEQ ID No. 229, SEQ ID No. 230, SEQ ID No. 231, SEQ ID No. 5 232, SEQ ID No. 1169, SEQ ID No. 1170, SEQ ID No. 1171, SEQ ID No. 234, SEQ ID No. 235, SEQ ID No. 236, SEQ ID No. 1172, SEQ ID No. 243, SEQ ID No. 251, SEQ ID No. 252, SEQ ID No. 1176, SEQ ID No. 253, SEQ ID No. 255, SEQ ID No. 254, SEQ ID No. 256, SEQ ID No. 1177, SEQ ID No. 1178, SEQ ID No. 262, SEQ ID No. 263, SEQ ID No. 1264, SEQ ID No. 278, SEQ ID No. 279, SEQ ID No. 1180, SEQ ID No. 280, SEQ ID No. 290, SEQ ID No. 291, SEQ ID No. 292, SEQ ID No. 296, SEQ ID No. 1181, SEQ ID No. 297, SEQ ID No. 298, SEQ ID No. 300, SEQ ID No. 1265, SEQ ID No. 322, SEQ ID No. 324, SEQ ID No. 325, SEQ ID No. 370, SEQ ID No. 1186, SEQ ID No. 371, SEQ ID No. 372, SEQ ID No. 1187, SEQ ID No. 373, SEQ ID No. 378, SEQ ID No. 1266, SEQ ID No. 382, SEQ ID No. 383, SEQ ID No. 384, SEQ ID No. 385, SEQ ID No. 386, SEQ ID No. 1188, SEQ ID No. 1189, SEQ ID No. 391, SEQ ID No. 392, SEQ ID No. 398, SEQ ID No. 15 400, SEQ ID No. 403, SEQ ID No. 1191, SEQ ID No. 423, SEQ ID No. 435, SEQ ID No. 445, SEQ ID No. 450, SEQ ID No. 1193, SEQ ID No. 456, SEQ ID No. 460, SEQ ID No. 461, SEQ ID No. 465, SEQ ID No. 1196, SEQ ID No. 471, SEQ ID No. 473, SEQ ID No. 475, SEQ ID No. 481, SEQ ID No. 484, SEQ ID No. 487, SEQ ID No. 488, SEQ ID No. 489, SEQ ID No. 490, SEQ ID No. 491, SEQ ID No. 492, SEQ ID No. 493, SEQ ID No. 494, SEQ ID No. 495, SEQ ID No. 496, SEQ ID No. 20 497, SEQ ID No. 498, SEQ ID No. 499, SEQ ID No. 502, SEQ ID No. 1267, SEQ ID No. 1268, SEQ ID No. 508, SEQ ID No. 510, SEQ ID No. 509, SEQ ID No. 512, SEQ ID No. 515, SEQ ID No. 519, SEQ ID No. 1197, SEQ ID No. 521, SEQ ID No. 1198, SEQ ID No. 522, SEQ ID No. 524, SEQ ID No. 528, SEQ ID No. 534, SEQ ID No. 537, SEQ ID No. 1269, SEQ ID No. 1270, SEQ ID No. 548, SEQ ID No. 551, SEQ ID No. 557, SEQ ID No. 1201, SEQ ID No. 1203, SEQ ID No. 562, SEQ ID No. 25 566, SEQ ID No. 593, SEQ ID No. 595, SEQ ID No. 600, SEQ ID No. 1271, SEQ ID No. 604, SEQ ID No. 611, SEQ ID No. 612, SEQ ID No. 614, SEQ ID No. 616, SEQ ID No. 625, SEQ ID No. 627, SEQ ID No. 628, SEQ ID No. 629, SEQ ID No. 631, SEQ ID No. 641, SEQ ID No. 1272, SEQ ID No. 648, SEQ ID No. 1212, SEQ ID No. 663, SEQ ID No. 685, SEQ ID No. 707, SEQ ID No. 714, SEQ ID No. 715, SEQ ID No. 716, SEQ ID No. 717, SEQ ID No. 722, SEQ ID No. 746, SEQ ID No. 30 1273, SEQ ID No. 761, SEQ ID No. 764, SEQ ID No. 770, SEQ ID No. 1217, SEQ ID No. 783, SEQ ID No. 1274, SEQ ID No. 803, SEQ ID No. 815, SEQ ID No. 1220, SEQ ID No. 835, SEQ ID No. 1221, SEQ ID No. 844, SEQ ID No. 845, SEQ ID No. 846, SEQ ID No. 847, SEQ ID No. 848, SEQ ID No. 849, SEQ ID No. 850, SEQ ID No. 851, SEQ ID No. 1275, SEQ ID No. 852, SEQ ID No. 862, SEQ ID No. 1276, SEQ ID No. 1277, SEQ ID No. 873, SEQ ID No. 1223, SEQ ID No. 892, SEQ ID No. 35 919, SEQ ID No. 1225, SEQ ID No. 1278, SEQ ID No. 926, SEQ ID No. 1228, SEQ ID No. 1229, SEQ ID No. 1230, SEQ ID No. 1279, SEQ ID No. 1281, SEQ ID No. 1282, SEQ ID No. 1283, SEQ ID No. 948, SEQ ID No. 950, SEQ ID No. 949, SEQ ID No. 951, SEQ ID No. 980, SEQ ID No.

982, SEQ ID No. 1233, SEQ ID No. 999, SEQ ID No. 1000, SEQ ID No. 1001, SEQ ID No. 1002, SEQ ID No. 1008, SEQ ID No. 1285, SEQ ID No. 1235, SEQ ID No. 1016, SEQ ID No. 1019, SEQ ID No. 1027, SEQ ID No. 1036, SEQ ID No. 1241, SEQ ID No. 1048, SEQ ID No. 1049, SEQ ID No. 1050, SEQ ID No. 1053, SEQ ID No. 1054, SEQ ID No. 1064, SEQ ID No. 1076, SEQ ID No. 1091, 5 SEQ ID No. 1288, SEQ ID No. 1093, SEQ ID No. 1289, SEQ ID No. 1101, SEQ ID No. 1103, SEQ ID No. 1245, SEQ ID No. 1246, SEQ ID No. 1247, SEQ ID No. 1290, SEQ ID No. 1291, SEQ ID No. 1115, SEQ ID No. 1116, SEQ ID No. 1118, SEQ ID No. 1120, SEQ ID No. 1249, SEQ ID No. 1121, SEQ ID No. 1250, SEQ ID No. 1126, SEQ ID No. 1251, SEQ ID No. 1127, SEQ ID No. 1128, SEQ ID No. 1130, SEQ ID No. 1129, SEQ ID No. 1131, SEQ ID No. 1136, SEQ ID No. 1253, SEQ ID No. 10 6844, SEQ ID No. 6846, SEQ ID No. 6847, SEQ ID No. 6848, and one of their representative fragments

Preferably, the invention relates to a polypeptide according to the invention, characterized in that it is a *Chlamydia pneumoniae* polypeptide or one of its representative fragments which is involved in the intermediate metabolism, in particular in the metabolism of sugars and/or of 15 cofactors, and in that it is chosen from the polypeptides having the following sequences:

SEQ ID No. 2; SEQ ID No. 55; SEQ ID No. 56; SEQ ID No. 69; SEQ ID No. 75; SEQ ID No. 80; SEQ ID No. 100; SEQ ID No. 110; SEQ ID No. 114; SEQ ID No. 120; SEQ ID No. 121; SEQ ID No. 157; SEQ ID No. 160; SEQ ID No. 161; SEQ ID No. 172; SEQ ID No. 180; SEQ ID No. 181; SEQ ID No. 198; SEQ ID No. 200; SEQ ID No. 225; SEQ ID No. 248; SEQ ID No. 249; SEQ ID 20 No. 276; SEQ ID No. 277; SEQ ID No. 318; SEQ ID No. 319; SEQ ID No. 320; SEQ ID No. 323; SEQ ID No. 331; SEQ ID No. 347; SEQ ID No. 375; SEQ ID No. 376; SEQ ID No. 381; SEQ ID No. 393; SEQ ID No. 394; SEQ ID No. 395; SEQ ID No. 396; SEQ ID No. 409; SEQ ID No. 446; SEQ ID No. 447; SEQ ID No. 448; SEQ ID No. 449; SEQ ID No. 513; SEQ ID No. 516; SEQ ID No. 571; SEQ ID No. 647; SEQ ID No. 662; SEQ ID No. 697; SEQ ID No. 718; SEQ ID No. 793; 25 SEQ ID No. 794; SEQ ID No. 808; SEQ ID No. 809; SEQ ID No. 838; SEQ ID No. 839; SEQ ID No. 840; SEQ ID No. 853; SEQ ID No. 854; SEQ ID No. 918; SEQ ID No. 923; SEQ ID No. 929; SEQ ID No. 931; SEQ ID No. 938; SEQ ID No. 939; SEQ ID No. 958; SEQ ID No. 959; SEQ ID No. 960; SEQ ID No. 966; SEQ ID No. 995; SEQ ID No. 1021; SEQ ID No. 1040; SEQ ID No. 1041; SEQ ID No. 1042; SEQ ID No. 1085; SEQ ID No. 1100; SEQ ID No. 1102; SEQ ID 30 No. 1117; SEQ ID No. 1118; SEQ ID No. 1119; SEQ ID No. 1120; SEQ ID No. 1135 and one of their representative fragments.

Preferably, the invention relates to a polypeptide according to the invention, characterized in that it is a *Chlamydia pneumoniae* polypeptide or one of its representative fragments which is involved in the intermediate metabolism of nucleotides or nucleic acids, and in that it is 35 chosen from the polypeptides having the following sequences:

SEQ ID No. 77; SEQ ID No. 78; SEQ ID No. 138; SEQ ID No. 189; SEQ ID No. 190; SEQ ID No. 233; SEQ ID No. 246; SEQ ID No. 338; SEQ ID No. 412; SEQ ID No. 421; SEQ ID No. 438;

SEQ ID No. 607; SEQ ID No. 648; SEQ ID No. 657; SEQ ID No. 740; SEQ ID No. 783; SEQ ID No. 967; SEQ ID No. 989; SEQ ID No. 990; SEQ ID No. 992; SEQ ID No. 1011; SEQ ID No. 1058; SEQ ID No. 1059; SEQ ID No. 1073; SEQ ID No. 1074 and one of their representative fragments.

5 Preferably, the invention relates to a polypeptide according to the invention, characterized in that it is a *Chlamydia pneumoniae* polypeptide or one of its representative fragments which is involved in the metabolism of nucleic acids, and in that it is chosen from the polypeptides having the following sequences:

SEQ ID No. 14; SEQ ID No. 59; SEQ ID No. 70; SEQ ID No. 71; SEQ ID No. 97; SEQ ID  
10 No. 113; SEQ ID No. 137; SEQ ID No. 141; SEQ ID No. 169; SEQ ID No. 285; SEQ ID No. 287;  
SEQ ID No. 288; SEQ ID No. 313; SEQ ID No. 326; SEQ ID No. 358; SEQ ID No. 411; SEQ ID  
No. 443; SEQ ID No. 548; SEQ ID No. 569; SEQ ID No. 601; SEQ ID No. 651; SEQ ID No. 654;  
SEQ ID No. 658; SEQ ID No. 659; SEQ ID No. 664; SEQ ID No. 665; SEQ ID No. 694; SEQ ID  
15 No. 698; SEQ ID No. 704; SEQ ID No. 760; SEQ ID No. 762; SEQ ID No. 763; SEQ ID No. 786;  
SEQ ID No. 787; SEQ ID No. 788; SEQ ID No. 801; SEQ ID No. 802; SEQ ID No. 812; SEQ ID  
No. 819; SEQ ID No. 822; SEQ ID No. 870; SEQ ID No. 897; SEQ ID No. 898; SEQ ID No. 902;  
SEQ ID No. 908; SEQ ID No. 916; SEQ ID No. 954; SEQ ID No. 955; SEQ ID No. 961; SEQ ID  
No. 983; SEQ ID No. 996; SEQ ID No. 1007; SEQ ID No. 1012; SEQ ID No. 1013; SEQ ID  
No. 1014; SEQ ID No. 1015; SEQ ID No. 1038; SEQ ID No. 1137 and one of their representative  
20 fragments.

Preferably, the invention relates to a polypeptide according to the invention, characterized in that it is a *Chlamydia pneumoniae* polypeptide or one of its representative fragments which is involved in the metabolism of amino acids or polypeptides, and in that it is chosen from the polypeptides having the following sequences:

25 SEQ ID No. 99; SEQ ID No. 111; SEQ ID No. 127; SEQ ID No. 134; SEQ ID No. 140; SEQ ID  
No. 174; SEQ ID No. 175; SEQ ID No. 176; SEQ ID No. 353; SEQ ID No. 377; SEQ ID No. 404;  
SEQ ID No. 523; SEQ ID No. 539; SEQ ID No. 559; SEQ ID No. 561; SEQ ID No. 586; SEQ ID  
No. 598; SEQ ID No. 609; SEQ ID No. 636; SEQ ID No. 687; SEQ ID No. 700; SEQ ID No. 701;  
SEQ ID No. 759; SEQ ID No. 790; SEQ ID No. 857; SEQ ID No. 861; SEQ ID No. 904; SEQ ID  
30 No. 936; SEQ ID No. 952; SEQ ID No. 962; SEQ ID No. 963; SEQ ID No. 964; SEQ ID No. 965;  
SEQ ID No. 991; SEQ ID No. 1003; SEQ ID No. 1004; SEQ ID No. 1005; SEQ ID No. 1018;  
SEQ ID No. 1067; SEQ ID No. 1110; SEQ ID No. 1111; SEQ ID No. 1112; SEQ ID No. 1114;  
SEQ ID No. 1121; SEQ ID No. 1122; SEQ ID No. 1123; SEQ ID No. 1124; SEQ ID No. 1125 and  
one of their representative fragments.

35 Preferably, the invention relates to a polypeptide according to the invention, characterized in that it is a *Chlamydia pneumoniae* polypeptide or one of its representative fragments which is involved in the metabolism of polypeptides, and in that it is chosen from the polypeptides

having the following sequences:

SEQ ID No. 4; SEQ ID No. 44; SEQ ID No. 45; SEQ ID No. 48; SEQ ID No. 54; SEQ ID No. 112; SEQ ID No. 130; SEQ ID No. 155; SEQ ID No. 163; SEQ ID No. 212; SEQ ID No. 257; SEQ ID No. 307; SEQ ID No. 343; SEQ ID No. 405; SEQ ID No. 416; SEQ ID No. 458; SEQ ID No. 540; SEQ ID No. 541; SEQ ID No. 542; SEQ ID No. 543; SEQ ID No. 544; SEQ ID No. 560; SEQ ID No. 594; SEQ ID No. 652; SEQ ID No. 699; SEQ ID No. 723; SEQ ID No. 747; SEQ ID No. 817; SEQ ID No. 827; SEQ ID No. 871; SEQ ID No. 909; SEQ ID No. 910; SEQ ID No. 911; SEQ ID No. 912; SEQ ID No. 1023; SEQ ID No. 1051; SEQ ID No. 1052; SEQ ID No. 1081 and one of their representative fragments.

10 Preferably, the invention relates to a polypeptide according to the invention, characterized in that it is a *Chlamydia pneumoniae* polypeptide or one of its representative fragments which is involved in the metabolism of fatty acids, and in that it is chosen from the polypeptides having the following sequences:

15 SEQ ID No. 76; SEQ ID No. 284; SEQ ID No. 308; SEQ ID No. 309; SEQ ID No. 310; SEQ ID No. 311; SEQ ID No. 312; SEQ ID No. 425; SEQ ID No. 433; SEQ ID No. 565; SEQ ID No. 688; SEQ ID No. 690; SEQ ID No. 691; SEQ ID No. 767; SEQ ID No. 797; SEQ ID No. 894; SEQ ID No. 895; SEQ ID No. 994; SEQ ID No. 1020; SEQ ID No. 1030; SEQ ID No. 1033; SEQ ID No. 1034; SEQ ID No. 1046; SEQ ID No. 1047; SEQ ID No. 1057 and one of their representative fragments.

20 Preferably, the invention relates to a polypeptide according to the invention, characterized in that it is a *Chlamydia pneumoniae* polypeptide or one of its representative fragments which is involved in the synthesis of the wall, and in that it is chosen from the polypeptides having the following sequences:

25 SEQ ID No. 49; SEQ ID No. 50; SEQ ID No. 177; SEQ ID No. 178; SEQ ID No. 245; SEQ ID No. 610; SEQ ID No. 972; SEQ ID No. 974; SEQ ID No. 978; SEQ ID No. 1037 and one of their representative fragments.

Preferably, the invention relates to a polypeptide according to the invention, characterized in that it is a *Chlamydia pneumoniae* polypeptide or one of its representative fragments which is involved in the transcription, translation and/or maturation process, and in that it is chosen from the polypeptides having the following sequences:

30 SEQ ID No. 90; SEQ ID No. 92; SEQ ID No. 131; SEQ ID No. 151; SEQ ID No. 199; SEQ ID No. 333; SEQ ID No. 334; SEQ ID No. 336; SEQ ID No. 379; SEQ ID No. 589; SEQ ID No. 590; SEQ ID No. 619; SEQ ID No. 630; SEQ ID No. 649; SEQ ID No. 739; SEQ ID No. 741; SEQ ID No. 806; SEQ ID No. 821; SEQ ID No. 843; SEQ ID No. 968; SEQ ID No. 971; SEQ ID No. 1061  
35 and one of their representative fragments.

Preferably, the invention relates to a polypeptide according to the invention, characterized in that it is a *Chlamydia pneumoniae* ribosomal polypeptide or one of its representative

fragments, and in that it is chosen from the polypeptides having the following sequences:

SEQ ID No. 93; SEQ ID No. 94; SEQ ID No. 95; SEQ ID No. 136; SEQ ID No. 259; SEQ ID No. 332; SEQ ID No. 348; SEQ ID No. 583; SEQ ID No. 584; SEQ ID No. 588; SEQ ID No. 591; SEQ ID No. 592; SEQ ID No. 663; SEQ ID No. 666; SEQ ID No. 667; SEQ ID No. 669; SEQ ID  
5 No. 670; SEQ ID No. 671; SEQ ID No. 672; SEQ ID No. 673; SEQ ID No. 674; SEQ ID No. 675; SEQ ID No. 676; SEQ ID No. 677; SEQ ID No. 678; SEQ ID No. 679; SEQ ID No. 680; SEQ ID No. 681; SEQ ID No. 683; SEQ ID No. 684; SEQ ID No. 738; SEQ ID No. 781; SEQ ID No. 1008; SEQ ID No. 1024; SEQ ID No. 1025; SEQ ID No. 1066 and one of their representative fragments.

Preferably, the invention also relates to a polypeptide according to the invention,  
10 characterized in that it is a *Chlamydia pneumoniae* transport polypeptide or one of its representative fragments, and in that it is chosen from the polypeptides having the following sequences:

SEQ ID No. 40; SEQ ID No. 41; SEQ ID No. 52; SEQ ID No. 105; SEQ ID No. 106; SEQ ID No. 107; SEQ ID No. 109; SEQ ID No. 133; SEQ ID No. 210; SEQ ID No. 211; SEQ ID No. 214; SEQ ID No. 215; SEQ ID No. 216; SEQ ID No. 217; SEQ ID No. 218; SEQ ID No. 219; SEQ ID  
15 No. 220; SEQ ID No. 223; SEQ ID No. 242; SEQ ID No. 260; SEQ ID No. 293; SEQ ID No. 299; SEQ ID No. 366; SEQ ID No. 369; SEQ ID No. 575; SEQ ID No. 602; SEQ ID No. 638; SEQ ID No. 639; SEQ ID No. 640; SEQ ID No. 643; SEQ ID No. 653; SEQ ID No. 702; SEQ ID No. 703; SEQ ID No. 724; SEQ ID No. 732; SEQ ID No. 855; SEQ ID No. 856; SEQ ID No. 901; SEQ ID No. 906; SEQ ID No. 933; SEQ ID No. 942; SEQ ID No. 1043; SEQ ID No. 1086; SEQ ID  
20 No. 1105 and one of their representative fragments.

Preferably, the invention relates to a polypeptide according to the invention, characterized in that it is a *Chlamydia pneumoniae* polypeptide or one of its representative fragments which is involved in the virulence process, and in that it is chosen from the polypeptides having the following sequences:

25 SEQ ID No. 546; SEQ ID No. 550; SEQ ID No. 778; SEQ ID No. 779; SEQ ID No. 886 and one of their representative fragments.

Preferably, the invention relates to a polypeptide according to the invention, characterized in that it is a *Chlamydia pneumoniae* polypeptide or one of its representative fragments which is involved in the secretory system and/or which is secreted, and in that it is chosen from the  
30 polypeptides having the following sequences:

SEQ ID No. 751; SEQ ID No. 874; SEQ ID No. 875; SEQ ID No. 876; SEQ ID No. 883; SEQ ID No. 884; SEQ ID No. 885 and one of their representative fragments.

The secreted polypeptides, including the Type III and other, non-Type III secreted polypeptides, of the present invention, as well as the corresponding nucleotide sequences, may be  
35 detected by techniques known to persons skilled in the art, such as for example the techniques using cloning combined with vectors allowing the expression of the said polypeptides fused to export markers such as the *luc* gene for luciferase or the *PhoA* gene for alkaline phosphatase.

Preferably, the invention relates to a polypeptide according to the invention, characterized in that it is a polypeptide specific to *Chlamydia pneumoniae* or one of its representative fragments (with a Blast E value of  $>10^{-5}$ ), and in that it is chosen from the polypeptides having the following sequences:

- 5 SEQ ID No. 7; SEQ ID No. 8; SEQ ID No. 17; SEQ ID No. 18; SEQ ID No. 19; SEQ ID No. 20; SEQ ID No. 22; SEQ ID No. 23; SEQ ID No. 24; SEQ ID No. 51; SEQ ID No. 60; SEQ ID No. 63; SEQ ID No. 65; SEQ ID No. 66; SEQ ID No. 67; SEQ ID No. 83; SEQ ID No. 84; SEQ ID No. 86; SEQ ID No. 87; SEQ ID No. 125; SEQ ID No. 143; SEQ ID No. 144; SEQ ID No. 179; SEQ ID No. 182; SEQ ID No. 184; SEQ ID No. 185; SEQ ID No. 187; SEQ ID No. 221;  
10 SEQ ID No. 252; SEQ ID No. 254;; SEQ ID No. 278; SEQ ID No. 279; SEQ ID No. 387; SEQ ID No. 388; SEQ ID No. 397; SEQ ID No. 1048; SEQ ID No. 1049; SEQ ID No. 1050; SEQ ID No. 1128; SEQ ID No. 1130; SEQ ID No. 1131 and one of their representative fragments.

In general, in the present invention, the functional group to which a polypeptide of the invention belongs, as well as its corresponding nucleotide sequence, may be determined either by  
15 comparative analogy with sequences already known, or by the use of standard techniques of biochemistry, of cytology combined with the techniques of genetic engineering such as immunoaffinity, localization by immunolabelling, differential extraction, measurement of enzymatic activity, study of the activity inducing or repressing expression or the study of expression in *E. coli*.

It is clearly understood, on the one hand, that, in the present invention, the nucleotide  
20 sequences (ORF) and the amino acid sequences (SEQ ID No. 2 to SEQ ID No. 1291 and SEQ ID No. 6844 to SEQ ID No. 6848) which are listed by functional group, are not exhaustive within the group considered. Moreover, it is also clearly understood that, in the present invention, a nucleotide sequence (ORF) or an amino acid sequence mentioned within a given functional group may also be part of another group taking into account, for example, the interrelationship between the groups listed.  
25 Accordingly, and as an example of this interrelationship, an exported and/or secreted polypeptide as well as its coding nucleotide sequence may also be involved in the *Chlamydia pneumoniae* virulence process by modifying the defense mechanism of the infected host cell, or a transmembrane polypeptide or its coding nucleotide sequence is also part of the polypeptides or coding nucleotide sequences of the cellular envelope.

30 The subject of the present invention is also the nucleotide and/or polypeptide sequences according to the invention, characterized in that the said sequences are recorded on a medium, called recording medium, whose type and nature facilitate the reading, the analysis and the exploitation of the said sequences. These media may of course also contain other information extracted from the present invention, such as in particular the analogies with already known sequences, such as those  
35 mentioned in Table 1 of the present description, and/or may contain, in addition, information relating to the nucleotide and/or polypeptide sequences of other microorganisms so as to facilitate the comparative analysis and the exploitation of the results obtained.

Among these recording media, computer-readable media, such as magnetic, optical, electrical and hybrid media such as, for example, floppy disks, CD-ROMs or recording cassettes, are preferred in particular.

The invention also relates to nucleotide sequences which can be used as primer or probe, 5 characterized in that the said sequences are chosen from the nucleotide sequences according to the invention.

The invention relates, in addition, to the use of a nucleotide sequence according to the invention, as primer or probe, for the detection and/or amplification of nucleic acid sequences.

The nucleotide sequences according to the invention may thus be used to amplify 10 nucleotide sequences, in particular by the PCR technique (polymerase chain reaction) (Erich, 1989; Innis et al., 1990; Rolfs et al., 1991, and White et al., 1997).

These oligodeoxyribonucleotide or oligoribonucleotide primers correspond to representative nucleotide fragments, and are advantageously at least 8 nucleotides, preferably at least 12 nucleotides, 15 nucleotides and still more preferably at least 20 nucleotides long.

15 Other techniques for amplifying the target nucleic acid may be advantageously used as alternatives to PCR.

The nucleotide sequences of the invention, in particular the primers according to the invention, may also be used in other methods for amplifying a target nucleic acid, such as:

- the TAS (Transcription-based Amplification System) technique described by Kwoh et al. in 1989;
- 20 - the 3SR (Self-Sustained Sequence Replication) technique described by Guatelli et al. in 1990;
- the NASBA (Nucleic Acid Sequence Based Amplification) technique described by Kievitis et al. in 1991;
- the SDA (Strand Displacement Amplification) technique (Walker et al., 1992);
- the TMA (Transcription Mediated Amplification) technique.

25 The polynucleotides of the invention may also be used in techniques for amplifying or for modifying the nucleic acid serving as probe, such as:

- the LCR (Ligase Chain Reaction) technique described by Landegren et al. in 1988 and perfected by Barany et al. in 1991, which uses a thermostable ligase;
- the RCR (Repair Chain Reaction) technique described by Segev in 1992;
- 30 - the CPR (Cycling Probe Reaction) technique described by Duck et al. in 1990;
- the Q-beta-replicase amplification technique described by Miele et al. in 1983 and perfected in particular by Chu et al. in 1986, Lizardi et al. in 1988, and then by Burg et al. as well as by Stone et al. in 1996.

The invention also relates to the nucleotide sequences of fragments which can be 35 obtained by amplification with the aid of at least one primer according to the invention. The present invention encompasses both hybridization probes and primers. In general, the complementary probes should be of a length sufficient to form a stable hybrid complex with the target sequences. Primers,



while complementary to the target sequences need not form stable hybridization complexes with the target sequences alone. Rather, primers form stable complexes with the target sequences in the presence of polymerase to permit extension of the primer.

In the case where the target polynucleotide to be detected is possibly an RNA, for example an mRNA, it will be possible to use, prior to the use of an amplification reaction with the aid of at least one primer according to the invention or to the use of a method of detection with the aid of at least one probe of the invention, a reverse transcriptase-type enzyme so as to obtain a cDNA from the RNA contained in the biological sample. The cDNA obtained will then serve as target for the primer(s) or the probe(s) used in the amplification or detection method according to the invention.

10 The detection probe will be chosen so that it hybridizes with the target sequence or the amplicon generated from the target sequence. Such a detection probe will advantageously have as sequence a sequence of at least 12 nucleotides, in particular of at least 20 nucleotides, and preferably at least 100 nucleotides.

The invention also comprises the nucleotide sequences which can be used as probe or primer according to the invention, characterized in that they are labelled with a radioactive compound or with a nonradioactive compound.

The nonlabelled nucleotide sequences may be used directly as probes or primers; however, the sequences are generally labelled with a radioactive element ( $^{32}\text{P}$ ,  $^{35}\text{S}$ ,  $^3\text{H}$ ,  $^{125}\text{I}$ ) or with a nonradioactive molecule (biotin, acetylaminofluorene, digoxigenin, 5-bromo-deoxyuridine, fluorescein) so as to obtain probes which can be used in numerous applications.

20 Examples of nonradioactive labelling of nucleotide sequences are described, for example, in French patent No. 78,10975 or by Urdea et al. or by Sanchez-Pescador et al. in 1988.

In the latter case, one of the labelling methods described in patents FR-2 422 956 and FR-2 518 755 may also be used.

25 The invention also relates to the nucleotide sequences of fragments which can be obtained by hybridization with the aid of at least one probe according to the invention.

The hybridization technique may be performed in various ways (Matthews et al., 1988). The most common method consists in immobilizing the nucleic acid extracted from *Chlamydia pneumoniae* cells on a support (such as nitrocellulose, nylon, polystyrene) and in incubating, under well-defined conditions, the target nucleic acid immobilized with the probe. After hybridization, the excess probe is removed and the hybrid molecules formed are detected by the appropriate method (measurement of the radioactivity, of the fluorescence or of the enzymatic activity linked to the probe).

35 The invention also comprises the nucleotide sequences according to the invention, characterized in that they are covalently or noncovalently immobilized on a support.

According to another advantageous embodiment of the nucleic sequences according to the invention, the latter may be used immobilized on a support and may thus serve to capture, through

specific hybridization, the target nucleic acid obtained from the biological sample to be tested. If necessary, the solid support is separated from the sample and the hybridization complex formed between the so-called capture probe and the target nucleic acid is then detected by means of a second probe, called detection probe, labelled with an easily detectable element.

5 The nucleotide sequences according to the invention may also be used in new analytical systems, DNA chips, which allow sequencing, the study of mutations and of the expression of genes, and which are currently of interest given their very small size and their high capacity in terms of number of analyses.

The principle of the operation of these chips is based on molecular probes, most often  
10 oligonucleotides, which are attached onto a miniaturized surface, generally of the order of a few square centimetres. During an analysis, a sample containing fragments of a target nucleic acid to be analysed, for example DNA or RNA labelled, for example, after amplification, is deposited onto the DNA chip in which the support has been coated beforehand with probes. Bringing the labelled target sequences into contact with the probes leads to the formation, through hybridization, of a duplex  
15 according to the rule of pairing defined by J.D. Watson and F. Crick. After a washing step, analysis of the surface of the chip allows the effective hybridizations to be located by means of the signals emitted by the labels tagging the target. A hybridization fingerprint results from this analysis which, by appropriate computer processing, will make it possible to determine information such as the presence of specific fragments in the sample, the determination of sequences and the presence of mutations.

20 The chip consists of a multitude of molecular probes, precisely organized or arrayed on a solid support whose surface is miniaturized. It is at the centre of a system where other elements (imaging system, microcomputer) allow the acquisition and interpretation of a hybridization fingerprint.

The hybridization supports are provided in the form of flat or porous surfaces (pierced  
25 with wells) composed of various materials. The choice of a support is determined by its physicochemical properties, or more precisely, by the relationship between the latter and the conditions under which the support will be placed during the synthesis or the attachment of the probes or during the use of the chip. It is therefore necessary, before considering the use of a particular support (R.S. Matson et al., 1994), to consider characteristics such as its stability to pH, its physical  
30 strength, its reactivity and its chemical stability as well as its capacity to nonspecifically bind nucleic acids. Materials such as glass, silicon and polymers are commonly used. Their surface is, in a first step, called "functionalization", made reactive towards the groups which it is desired to attach thereon. After the functionalization, so-called spacer molecules are grafted onto the activated surface. Used as intermediates between the surface and the probe, these molecules of variable size render unimportant  
35 the surface properties of the supports, which often prove to be problematic for the synthesis or the attachment of the probes and for the hybridization.

Among the hybridization supports, there may be mentioned glass which is used, for

example, in the method of in situ synthesis of oligonucleotides by photochemical addressing developed by the company Affymetrix (E.L. Sheldon, 1993), the glass surface being activated by silane. Genosensor Consortium (P. Mérel, 1994) also uses glass slides carrying wells 3 mm apart, this support being activated with epoxysilane.

5           Polymers or silicon may also be mentioned among these hybridization supports. For example, the Andrein Mirzabekov team has developed a chip consisting of polyacrylamide squares polymerized on a silanized glass surface (G. Yershov et al., 1996). Several teams use silicon, in particular the IFOS laboratory of Ecole Centrale of Lyon which uses a silicon semiconductor substrate which is p-doped by introducing it into its crystalline structure atoms whose valency is different from  
10 that of silicon. Various types of metals, in particular gold and platinum, may also be used as support (Genosensor Consortium (K. Beattie et al., 1993)).

          The probes according to the invention may be synthesized directly in situ on the supports of the DNA chips. This in situ synthesis may be carried out by photochemical addressing (developed by the company Affymax (Amsterdam, Holland) and exploited industrially by its subsidiary  
15 Affymetrix (United States)) or based on the VLSIPS (very large scale immobilized polymer synthesis) technology (S.P.A. Fodor et al., 1991) which is based on a method of photochemically directed combinatorial synthesis and the principle of which combines solid-phase chemistry, the use of photolabile protecting groups and photolithography.

          The probes according to the invention may be attached to the DNA chips in various ways  
20 such as electrochemical addressing, automated addressing or the use of probe printers (T. Livache et al., 1994; G. Yershov et al., 1996; J. Derisi et al., 1996, and S. Borman, 1996).

          The revealing of the hybridization between the probes of the invention, deposited or synthesized in situ on the supports of the DNA chips, and the sample to be analysed, may be determined, for example, by measurement of fluorescent signals, by radioactive counting or by  
25 electronic detection.

          The use of fluorescent molecules such as fluorescein constitutes the most common method of labelling the samples. It allows direct or indirect revealing of the hybridization and allows the use of various fluorochromes.

          Affymetrix currently provides an apparatus or a scanner designed to read its Gene Chip™  
30 chips. It makes it possible to detect the hybridizations by scanning the surface of the chip in confocal microscopy (R.J. Lipshutz et al., 1995). Other methods of detecting fluorescent signals have been tested: coupling of an epifluorescence microscope and a CCD camera (G. Yershov et al., 1996), the use of an optical fibre collecting system (E.L. Sheldon, 1993). A conventional method consists in carrying out an end labelling, with phosphorus 32, of the target sequences, by means of an appropriate  
35 apparatus, the Phosphorimager (marketed by Molecular Dynamics). The electronic detection is based on the principle that the hybridization of two nucleic acid molecules is accompanied by physical phenomena which can be quantified under certain conditions (system developed by Ecole Centrale of

Lyons and called GEN-FET (GEN field effect transistor)). Genosensor Consortium and the company Beckman Instruments who are developing an electronic chip or Permittivity Chips™ may also be mentioned (K. Beattie et al., 1993).

The nucleotide sequences according to the invention may thus be used in DNA chips to  
5 carry out the analysis of mutations. This analysis is based on the production of chips capable of analysing each base of a nucleotide sequence according to the invention.

The nucleotide sequences according to the invention may also be used in DNA chips to carry out the analysis of the expression of the *Chlamydia pneumoniae* genes. This analysis of the expression of *Chlamydia pneumoniae* genes is based on the use of chips where probes of the  
10 invention, chosen for their specificity to characterize a given gene, are present (D.J. Lockhart et al., 1996; D.D. Shoemaker et al., 1996). For the methods of analysis of gene expression using the DNA chips, reference may, for example, be made to the methods described by D.J. Lockhart et al. (1996) and Sosnowsky et al. (1997) for the synthesis of probes in situ or for the addressing and the attachment of previously synthesized probes. The target sequences to be analysed are labelled and in general  
15 fragmented into sequences of about 50 to 100 nucleotides before being hybridized onto the chip. After washing as described, for example, by D.J. Lockhart et al. (1996) and application of different electric fields (Sosnowsky et al., 1997), the labelled compounds are detected and quantified, the hybridizations being carried out at least in duplicate. Comparative analyses of the signal intensities obtained with respect to the same probe for different samples and/or for different probes with the same sample,  
20 determine the differential expression of RNA or of DNA derived from the sample.

The nucleotide sequences according to the invention may, in addition, be used in DNA chips where other nucleotide probes specific for other microorganisms are also present, and may allow the carrying out of a serial test allowing rapid identification of the presence of a microorganism in a sample.

25 Accordingly, the subject of the invention is also the nucleotide sequences according to the invention, characterized in that they are immobilized on a support of a DNA chip.

The DNA chips, characterized in that they contain at least one nucleotide sequence according to the invention, immobilized on the support of the said chip, also form part of the invention.

30 The said chips will preferably contain several probes or nucleotide sequences of the invention of different length and/or corresponding to different genes so as to identify, with greater certainty, the specificity of the target sequences or the desired mutation in the sample to be analysed.

Accordingly, the analyses carried out by means of primers and/or probes according to the invention, immobilized on supports such as DNA chips, will make it possible, for example, to identify,  
35 in samples, mutations linked to variations such as intraspecies variations. These variations may be correlated or associated with pathologies specific to the variant identified and will make it possible to select the appropriate treatment.

The invention thus comprises a DNA chip according to the invention, characterized in that it contains, in addition, at least one nucleotide sequence of a microorganism different from *Chlamydia pneumoniae*, immobilized on the support of the said chip; preferably, the different microorganism will be chosen from an associated microorganism, a bacterium of the

5 *Chlamydia* family, and a variant of the species *Chlamydia pneumoniae*.

Another subject of the present invention is a vector for the cloning and/or the expression of a sequence, characterized in that it contains a nucleotide sequence according to the invention. Among the said vectors according to the invention, the vectors containing a nucleotide sequence encoding a polypeptide of the cellular, preferably outer, envelope of *Chlamydia pneumoniae* or one of

10 its representative fragments, are preferred. In a specific embodiment, the vectors contain a nucleotide sequence encoding a *Chlamydia pneumoniae* secreted polypeptide or one of its representative fragments or encoding a transport polypeptide, a surface exposed polypeptide, a lipoprotein or one of its representative fragments, a polypeptide involved in lipopolysaccharide (LPS) biosynthesis, a Type III and non-Type III secreted polypeptide, a polypeptide containing RGD attachment sites, a cell wall

15 anchored surface polypeptide, a polypeptide not found in *Chlamydia trachomatis*, a ribosomal polypeptide or a polypeptide involved in secretion, transcription, translation, maturation of proteins, a polypeptide involved in the synthesis of the wall, a polypeptide involved in the virulence, a polypeptide involved in the intermediate metabolism, in particular in the metabolism of sugars and/or of cofactors, a polypeptide involved in the metabolism of nucleotides, of amino acids, of nucleic acids

20 or of fatty acids of *Chlamydia pneumoniae* or one of their representative fragments, or a polypeptide specific to *Chlamydia pneumoniae*.

According to the invention, the vectors comprise the elements necessary to allow the expression and/or the secretion of the said nucleotide sequences in a given host cell, and form part of the invention. The vector should, in this case, comprise a promoter, signals for initiation and for

25 termination of translation, as well as appropriate regions for regulation of transcription. It should be capable of being stably maintained in the host cell and may optionally possess particular signals specifying the secretion of the translated protein. These different elements are chosen according to the host cell used. To this effect, the nucleotide sequences according to the invention may be inserted into autonomously-replicating vectors within the chosen host, or integrative vectors in the chosen host.

30 Any of the standard methods known to those skilled in the art for the insertion of DNA fragments into a vector may be used to construct expression vectors containing a chimeric gene consisting of appropriate transcriptional/translational control signals and the protein coding sequences. These methods may include *in vitro* recombinant DNA and synthetic techniques and *in vivo* recombinants (genetic recombination).

35 Expression of a polypeptide, peptide or derivative, or analogs thereof encoded by a polynucleotide sequence in SEQ ID No. 1 or ORFs contained within SEQ ID No. 1 may be regulated by a second nucleic acid sequence so that the protein or peptide is expressed in a host transformed

with the recombinant DNA molecule. For example, expression of a protein or peptide may be controlled by any promoter/enhancer element known in the art. Promoters which may be used to control expression include, but are not limited to, the CMV promoter, the SV40 early promoter region (Bernoist and Chambon, 1981, *Nature* 290:304-310), the promoter contained in the 3' long terminal repeat of Rous sarcoma virus (Yamamoto, *et al.*, 1980, *Cell* 22:787-797), the herpes thymidine kinase promoter (Wagner *et al.*, 1981, *Proc. Natl. Acad. Sci. U.S.A.* 78:1441-1445), the regulatory sequences of the metallothionein gene (Brinster *et al.*, 1982, *Nature* 296:39-42); prokaryotic expression vectors such as the  $\beta$ -lactamase promoter (Villa-Kamaroff, *et al.*, 1978, *Proc. Natl. Acad. Sci. U.S.A.* 75:3727-3731), or the *tac* promoter (DeBoer, *et al.*, 1983, *Proc. Natl. Acad. Sci. U.S.A.* 80:21-25); see also "Useful proteins from recombinant bacteria" in *Scientific American*, 1980, 242:74-94; plant expression vectors comprising the nopaline synthetase promoter region (Herrera-Estrella *et al.*, 1983, *Nature* 303:209-213) or the cauliflower mosaic virus 35S RNA promoter (Gardner, *et al.*, 1981, *Nucl. Acids Res.* 9:2871), and the promoter of the photosynthetic enzyme ribulose biphosphate carboxylase (Herrera-Estrella *et al.*, 1984, *Nature* 310:115-120); promoter elements from yeast or other fungi such as the Gal 4 promoter, the ADC (alcohol dehydrogenase) promoter, PGK (phosphoglycerol kinase) promoter, alkaline phosphatase promoter, and the following animal transcriptional control regions, which exhibit tissue specificity and have been utilized in transgenic animals: elastase I gene control region which is active in pancreatic acinar cells (Swift *et al.*, 1984, *Cell* 38:639-646; Ornitz *et al.*, 1986, *Cold Spring Harbor Symp. Quant. Biol.* 50:399-409; MacDonald, 1987, *Hepatology* 7:425-515); insulin gene control region which is active in pancreatic beta cells (Hanahan, 1985, *Nature* 315:115-122), immunoglobulin gene control region which is active in lymphoid cells (Grosschedl *et al.*, 1984, *Cell* 38:647-658; Adames *et al.*, 1985, *Nature* 318:533-538; Alexander *et al.*, 1987, *Mol. Cell. Biol.* 7:1436-1444), mouse mammary tumor virus control region which is active in testicular, breast, lymphoid and mast cells (Leder *et al.*, 1986, *Cell* 45:485-495), albumin gene control region which is active in liver (Pinkert *et al.*, 1987, *Genes and Devel.* 1:268-276), alpha-fetoprotein gene control region which is active in liver (Krumlauf *et al.*, 1985, *Mol. Cell. Biol.* 5:1639-1648; Hammer *et al.*, 1987, *Science* 235:53-58; alpha 1-antitrypsin gene control region which is active in the liver (Kelsey *et al.*, 1987, *Genes and Devel.* 1:161-171), beta-globin gene control region which is active in myeloid cells (Mogram *et al.*, 1985, *Nature* 315:338-340; Kollias *et al.*, 1986, *Cell* 46:89-94; myelin basic protein gene control region which is active in oligodendrocyte cells in the brain (Readhead *et al.*, 1987, *Cell* 48:703-712); myosin light chain-2 gene control region which is active in skeletal muscle (Sani, 1985, *Nature* 314:283-286), and gonadotropic releasing hormone gene control region which is active in the hypothalamus (Mason *et al.*, 1986, *Science* 234:1372-1378).

The vectors according to the invention are, for example, vectors of plasmid or viral origin. In a specific embodiment, a vector is used that comprises a promoter operably linked to a protein or peptide-encoding a nucleic acid sequence in SEQ ID No. 1, or ORFs contained within SEQ ID No. 1, one or more origins of replication, and, optionally, one or more selectable markers (*e.g.*, an

antibiotic resistance gene). Expression vectors comprise regulatory sequences that control gene expression, including gene expression in a desired host cell. Preferred vectors for the expression of the polypeptides of the invention include the pET-type plasmid vectors (Promega) or pBAD plasmid vectors (Invitrogen). Furthermore, the vectors according to the invention are useful for transforming  
5 host cells so as to clone or express the nucleotide sequences of the invention.

Expression can also be achieved using targeted homologous recombination to activate *Chlamydia pneumoniae* genes present in the cloned genomic DNA. A heterologous regulatory element may be inserted into a stable cell line or cloned microorganism, such that it is operatively linked with an endogenous *Chlamydia pneumoniae* gene present in the cloned genome, using  
10 techniques, such as targeted homologous recombination, which are well known to those of skill in the art (See, e.g., Chappel, U.S. Patent No. 4,215,051 and Skoultchi, WO 91/06667 each of which is incorporated herein in its entirety).

Expression vector/host cell systems containing inserts of polynucleotide sequences in SEQ ID No. 1 or ORFs within SEQ ID No. 1, which encode polypeptides, peptides or derivatives, or  
15 analogs thereof, can be identified by three general approaches: (a) nucleic acid hybridization, (b) presence or absence of "marker" gene functions, and (c) expression of inserted sequences. In the first approach, the presence of a polynucleotide sequence inserted in an expression vector can be detected by nucleic acid hybridization using probes comprising sequences that are homologous to an inserted polynucleotide sequence. In the second approach, the recombinant vector/host system can be  
20 identified and selected based upon the presence or absence of certain "marker" gene functions (e.g., thymidine kinase activity, resistance to antibiotics, transformation phenotype, occlusion body formation in baculovirus, etc.) caused by the insertion of a polynucleotide sequence in the vector. For example, if the polynucleotide sequence in SEQ ID No. 1 or ORFs within SEQ ID No. 1 is inserted within the marker gene sequence of the vector, recombinants containing the insert can be identified by  
25 the absence of the marker gene function. In the third approach, recombinant expression vectors can be identified by assaying the product of the polynucleotide sequence expressed by the recombinant. Such assays can be based, for example, on the physical or functional properties of the expressed polypeptide in *in vitro* assay systems, e.g., binding with antibody, promotion of cell proliferation.

Once a particular recombinant DNA molecule is identified and isolated, several methods  
30 known in the art may be used to propagate it. The clones identified may be introduced into an appropriate host cell by standard methods, such as for example lipofection, electroporation, and heat shock. Once a suitable host system and growth conditions are established, recombinant expression vectors can be propagated and prepared in quantity.

The invention also encompasses the host cells transformed by a vector according to the  
35 invention. These cells may be obtained by introducing into host cells a nucleotide sequence inserted into a vector as defined above, and then culturing the said cells under conditions allowing the replication and/or the expression of the transfected nucleotide sequence.

The host cell may be chosen from eukaryotic or prokaryotic systems, such as for example bacterial cells (Olins and Lee, 1993), but also yeast cells (Buckholz, 1993), as well as animal cells, in particular cultures of mammalian cells (Edwards and Aruffo, 1993), and in particular Chinese hamster ovary (CHO) cells, but also insect cells in which methods using baculoviruses for example  
5 may be used (Luckow, 1993).

Furthermore, a host cell strain may be chosen which modulates the expression of the inserted sequences, or modifies and processes the gene product in the specific fashion desired. Expression from certain promoters can be elevated in the presence of certain inducers; thus, expression of the genetically engineered polypeptide may be controlled. Furthermore, different host  
10 cells have characteristic and specific mechanisms for the translational and post-translational processing and modification (e.g., glycosylation, phosphorylation) of proteins. Appropriate cell lines or host systems can be chosen to ensure the desired modification and processing of the foreign protein expressed. For example, expression in a bacterial system can be used to produce an unglycosylated core protein product. Expression in yeast will produce a glycosylated product. Expression in  
15 mammalian cells can be used to ensure "native" glycosylation of a heterologous protein. Furthermore, different vector/host expression systems may effect processing reactions to different extents.

A preferred host cell for the expression of the proteins of the invention consists of prokaryotic cells, such as Gram<sup>+</sup> bacteria. A further preferred host cell according to the invention is a bacterium belonging to the *Chlamydia* family, more preferably belonging to the species *Chlamydia pneumoniae* or chosen from a microorganism associated with the species *Chlamydia pneumoniae*.  
20

In other specific embodiments, the polypeptides, peptides or derivatives, or analogs thereof may be expressed as a fusion, or chimeric protein product (comprising the protein, fragment, analog, or derivative joined via a peptide bond to a heterologous protein sequence (of a different protein)). Such a chimeric product can be made by ligating the appropriate nucleic acid sequences  
25 encoding the desired amino acid sequences to each other by methods known in the art, in the proper coding frame, and expressing the chimeric product by methods commonly known in the art. Alternatively, such a chimeric product may be made by protein synthetic techniques, e.g., by use of a peptide synthesizer.

Genomic sequences can be cloned and expressed as translational gene products (i.e.,  
30 peptides, polypeptides, and proteins) or transcriptional gene products (i.e., antisense and ribozymes).

The invention further relates to the intracellular production of an antisense nucleic acid sequence of SEQ ID No. 1 by transcription from an exogenous sequence. For example, a vector can be introduced *in vivo* such that it is taken up by a cell, within which cell the vector or a portion thereof is transcribed, producing an antisense nucleic acid (RNA) of the invention. Such a vector would  
35 contain a sequence encoding an antisense nucleic acid. Such a vector can remain episomal or become chromosomally integrated, as long as it can be transcribed to produce the desired antisense RNA. Such vectors can be constructed by recombinant DNA technology methods standard in the art.



Vectors can be plasmid, viral, or others known in the art, used for replication and expression in mammalian cells. Expression of the sequence encoding the an antisense RNA can be by any promoter known in the art to act in mammalian, preferably human, cells. Such promoters can be inducible or constitutive. Such promoters include but are not limited to: the CMV promoter, the SV40 early promoter region (Bernoist and Chambon, 1981, Nature 290:304-310), the promoter contained in the 3N long terminal repeat of Rous sarcoma virus (Yamamoto *et al.*, 1980, Cell 22:787-797), the herpes thymidine kinase promoter (Wagner *et al.*, 1981, Proc. Natl. Acad. Sci. U.S.A. 78:1441-1445), the regulatory sequences of the metallothionein gene (Brinster *et al.*, 1982, Nature 296:39-42), etc.

In a specific embodiment, the antisense oligonucleotide comprises catalytic RNA, or a ribozyme (see, *e.g.*, PCT International Publication WO 90/11364, published October 4, 1990; Sarver *et al.*, 1990, Science 247:1222-1225). In another embodiment, the oligonucleotide is a 2N-0-methylribonucleotide (Inoue *et al.*, 1987, Nucl. Acids Res. 15:6131-6148), or a chimeric RNA-DNA analog (Inoue *et al.*, 1987, FEBS Lett. 215:327-330).

In another embodiment, the antisense nucleic acids of the invention comprise a sequence complementary to at least a portion of an RNA transcript of a polynucleotide sequence in SEQ ID No. 1. However, absolute complementarity, although preferred, is not required. A sequence "complementary to at least a portion of an RNA," as referred to herein, means a sequence having sufficient complementarity to be able to hybridize with the RNA, forming a stable duplex; in the case of double-stranded antisense nucleic acid sequence, a single strand of the duplex DNA may thus be tested, or triplex formation may be assayed. The ability to hybridize will depend on both the degree of complementarity and the length of the antisense nucleic acid. Generally, the longer the hybridizing nucleic acid, the more base mismatches with an RNA transcribed from SEQ ID No. 1 may contain and still form a stable duplex (or triplex, as the case may be). One skilled in the art can ascertain a tolerable degree of mismatch by use of standard procedures to determine the melting point of the hybridized complex.

The invention also relates to the animals, except humans, comprising one of the above-described transformed cells according to the invention.

The production of transgenic animals according to the invention overexpressing one or more of the *Chlamydia pneumoniae* genes will be preferably carried out on rats, mice or rabbits according to methods well known to persons skilled in the art such as viral or nonviral transfections. The transgenic animals overexpressing one or more of the said genes may be obtained by transfection of multiple copies of the said genes under the control of a powerful promoter of a ubiquitous nature, or which is selective for one type of tissue. The transgenic animals may also be obtained by homologous recombination on embryonic stem cells, transfer of these stem cells to embryos, selection of the chimeras affected at the level of the reproductive lines, and growth of the said chimeras.

The transformed cells as well as the transgenic animals according to the invention can be used in methods of preparing the recombinant polypeptide.

It is now possible to produce recombinant polypeptides in a relatively large quantity by genetic engineering using the cells transformed with expression vectors according to the invention or using transgenic animals according to the invention.

The methods of preparing a polypeptide of the invention in recombinant form, 5 characterized in that they use a vector and/or a cell transformed with a vector according to the invention and/or a transgenic animal comprising one of the said transformed cells according to the invention, are themselves included in the present invention.

Among the said methods of preparing a polypeptide of the invention in recombinant form, the methods of preparation using a vector, and/or a cell transformed with the said vector and/or a 10 transgenic animal comprising one of the said transformed cells, containing a nucleotide sequence encoding a polypeptide of the cellular envelope of *Chlamydia pneumoniae* or one of its representative fragments, more preferably encoding a polypeptide of the outer cellular envelope of *Chlamydia pneumoniae* or one of its fragment, are preferred.

Among the said methods of preparing a polypeptide of the invention in recombinant 15 form, the methods of preparation using a vector, and/or a cell transformed with the said vector and/or a transgenic animal comprising one of the said transformed cells, containing a nucleotide sequence encoding a *Chlamydia pneumoniae* secreted polypeptide or one of its representative fragments or encoding a transport polypeptide, a surface exposed polypeptide, a lipoprotein or one of its representative fragments, a polypeptide involved in lipopolysaccharide biosynthesis, a Type III or 20 other secreted polypeptide, a polypeptide containing RGD attachment sites, a cell wall anchored surface polypeptide, a polypeptide not found in *Chlamydia trachomatis*, a ribosomal polypeptide or a polypeptide involved in secretion, transcription, translation, maturation of proteins, a polypeptide involved in the synthesis of the wall, a polypeptide involved in the virulence, a polypeptide involved in the intermediate metabolism, in particular in the metabolism of sugars and/or of cofactors, a 25 polypeptide involved in the metabolism of nucleotides, of amino acids, of nucleic acids or of fatty acids of *Chlamydia pneumoniae* or one of their representative fragments, or a polypeptide specific to *Chlamydia pneumoniae*, are also preferred.

The recombinant polypeptides obtained as indicated above may be provided either in glycosylated or non-glycosylated form and may or may not have the natural tertiary structure.

30 A preferred variant consists in producing a recombinant polypeptide fused to a "carrier" protein (chimeric protein). The advantage of this system is that it allows a stabilization and a reduction in proteolysis of the recombinant product, an increase in solubility during renaturation in vitro and/or a simplification of purification when the fusion partner has affinity for a specific ligand.

More particularly, the invention relates to a method of preparing a polypeptide of the 35 invention comprising the following steps:

a) culture of the transformed cells under conditions allowing the expression of a recombinant polypeptide having a nucleic acid sequence according to the invention;

b) where appropriate, recovery of the said recombinant polypeptide.

When the method of preparing a polypeptide of the invention uses a transgenic animal according to the invention, the recombinant polypeptide is then extracted from the said animal.

The subject of the invention is also a polypeptide capable of being obtained by a method  
5 of the invention as described above.

The invention also comprises a method of preparing a synthetic polypeptide, characterized in that it uses an amino acid sequence of polypeptides according to the invention.

The invention also relates to a synthetic polypeptide obtained by a method according to the invention.

10 Polypeptides according to the invention may also be prepared by conventional techniques in the field of peptide synthesis under conditions suitable to produce the polypeptides encoded by the polynucleotide of the invention. This synthesis may be carried out in and recovered from a homogeneous solution or on a solid phase.

For example, the synthesis technique in a homogeneous solution described by  
15 Houbenweyl in 1974 may be used.

This method of synthesis consists in successively condensing, in pairs, the successive amino acids in the required order, or in condensing amino acids and fragments previously formed and already containing several amino acids in the appropriate order, or alternatively several fragments thus previously prepared, it being understood that care will have been taken to protect beforehand all the  
20 reactive functional groups carried by these amino acids or fragments, with the exception of the amine functional groups of one and the carboxyl functional groups of the other or vice versa, which should normally take part in the formation of the peptide bonds, in particular after activation of the carboxyl functional group, according to methods well known in peptide synthesis.

According to another preferred technique of the invention, the one described by  
25 Merrifield is used.

To manufacture a peptide chain according to the Merrifield method, a highly porous polymer resin is used, onto which the first C-terminal amino acid of the chain is attached. This amino acid is attached onto a resin via its carboxyl group and its amine functional group is protected. The amino acids which will constitute the peptide chain are thus attached, one after another, onto the amine  
30 group, each time deprotected beforehand, of the portion of the peptide chain already formed, and which is attached to the resin. When the entire peptide chain desired is formed, the protecting groups are removed from the various amino acids constituting the peptide chain and the peptide is detached from the resin with the aid of an acid.

The invention relates, in addition, to hybrid (fusion) polypeptides having at least one  
35 polypeptide or one of its representative fragments according to the invention, and a sequence of a polypeptide capable of eliciting an immune response in humans or animals.

Advantageously, the antigenic determinant is such that it is capable of eliciting a humoral

and/or cellular response. An antigenic determinant may be identified by screening expression libraries of the *Chlamydia pneumoniae* genome with antibodies contained in the serum of patients infected with a bacterium belonging to the species *Chlamydia pneumoniae*. An antigenic determinant may comprise a polypeptide or one of its representative fragments according to the invention, in glycosylated form, used in order to obtain immunogenic compositions capable of inducing the synthesis of antibodies directed against multiple epitopes. The said polypeptides or their glycosylated fragments also form part of the invention.

These hybrid molecules may consist, in part, of a carrier molecule for polypeptides or for their representative fragments according to the invention, combined with a portion which may be immunogenic, in particular an epitope of the diphtheria toxin, the tetanus toxin, a hepatitis B virus surface antigen (patent FR 79 21811), the poliomyelitis virus VP1 antigen or any other viral or bacterial toxin or antigen.

The methods of synthesizing the hybrid molecules include the methods used in genetic engineering to construct hybrid nucleotide sequences encoding the desired polypeptide sequences. Reference may be advantageously made, for example, to the technique for producing genes encoding fusion proteins described by Minton in 1984.

The said hybrid nucleotide sequences encoding a hybrid polypeptide as well as the hybrid polypeptides according to the invention, characterized in that they are recombinant polypeptides obtained by the expression of the said hybrid nucleotide sequences, also form part of the invention.

The invention also comprises the vectors characterized in that they contain one of the said hybrid nucleotide sequences. The host cells transformed by the said vectors, the transgenic animals comprising one of the said transformed cells as well as the methods of preparing recombinant polypeptides using the said vectors, the said transformed cells and/or the said transgenic animals of course also form part of the invention.

The polypeptides according to the invention, the antibodies according to the invention described below and the nucleotide sequences according to the invention may advantageously be used in *in vitro* and/or *in vivo* methods for the detection and/or the identification of bacteria belonging to the species *Chlamydia pneumoniae*, in a biological sample (biological tissue or fluid) which is likely to contain them. These methods, depending on the specificity of the polypeptides, of the antibodies and of the nucleotide sequences according to the invention which will be used, may in particular detect and/or identify the bacterial variants belonging to the species *Chlamydia pneumoniae* as well as the associated microorganisms capable of being detected by the polypeptides, the antibodies and the nucleotide sequences according to the invention which will be chosen. It may, for example, be advantageous to choose a polypeptide, an antibody or a nucleotide sequence according to the invention, which is capable of detecting any bacterium of the *Chlamydia* family by choosing a polypeptide, an antibody and/or a nucleotide sequence according to the invention which is specific to the family or, on the contrary, it will be most particularly advantageous to target a variant of the

species *Chlamydia pneumoniae*, which is responsible, for example, for the induction or the worsening of pathologies specific to the targeted variant, by choosing a polypeptide, an antibody and/or a nucleotide sequence according to the invention which is specific to the said variant.

The polypeptides according to the invention may advantageously be used in a method for the detection and/or the identification of bacteria belonging to the species *Chlamydia pneumoniae* or to an associated microorganism, in a biological sample (biological tissue or fluid) which is likely to contain them, characterized in that it comprises the following steps:

- a) bringing this biological sample into contact with a polypeptide or one of its representative fragments according to the invention (under conditions allowing an immunological reaction between the said polypeptide and the antibodies which may be present in the biological sample);
- b) detecting the antigen-antibody complexes which may be formed.

Preferably, the biological sample consists of a fluid, for example a human or animal serum, blood or biopsies.

Any conventional procedure may be used to carry out such a detection of the antigen-antibody complexes which may be formed.

By way of example, a preferred method uses immunoenzymatic procedures based on the ELISA technique, immunofluorescence procedures or radioimmunological procedures (RIA), and the like.

Accordingly, the invention also relates to the polypeptides according to the invention, labelled with the aid of a suitable label such as a label of the enzymatic, fluorescent or radioactive type.

Such methods comprise, for example, the following steps:

- deposition of defined quantities of a polypeptide composition according to the invention into the wells of a microtitre plate,
- introduction, into the said wells, of increasing dilutions of serum, or of a different biological sample as defined above, which has to be analysed,
- incubation of the microplate,
- introduction, into the wells of the microtitre plate, of labelled antibodies directed against human or animal immunoglobulins, these antibodies having been labelled with the aid of an enzyme selected from those which are capable of hydrolyzing a substrate, thereby modifying the absorption of the radiation of the latter, at least at a defined wavelength, for example at 550 nm,
- detection, by comparison with a control, of the quantity of substrate hydrolyzed.

The invention also relates to a kit or set for the detection and/or the identification of bacteria belonging to the species *Chlamydia pneumoniae* or to an associated microorganism, characterized in that it comprises the following components:

- a polypeptide according to the invention,

- where appropriate, the reagents for constituting the medium appropriate for the immunological or specific reaction;
- the reagents allowing the detection of the antigen-antibody complexes produced by the immunological reaction between the polypeptide(s) of the invention and the antibodies which may be present in the biological sample, it being possible for these reagents also to carry a label, or to be capable of being recognized in turn by a labelled reagent, more particularly in the case where the polypeptide according to the invention is not labelled,
- where appropriate, a reference biological sample (negative control) free of antibodies recognized by a polypeptide according to the invention,
- 10 - where appropriate, a reference biological sample (positive control) containing a predetermined quantity of antibodies recognized by a polypeptide according to the invention.

According to the invention, the polypeptides, peptides, fusion proteins or other derivatives, or analogs thereof encoded by a polynucleotide sequence in SEQ ID No. 1, may be used as an immunogen to generate antibodies which immunospecifically bind such an immunogen. Such antibodies may include, but are not limited to, polyclonal and monoclonal antibodies, humanized or chimeric antibodies, single chain antibodies, Fab fragments, F(ab')<sub>2</sub> fragments, fragments produced by a Fab expression library, anti-idiotypic (anti-Id) antibodies, and epitope-binding fragments of any of the above. In a specific embodiment, the antibody to a polypeptide, peptide or other derivative, or analog thereof encoded by a polynucleotide sequence in SEQ ID No. 1 is a bispecific antibody (see 20 generally, *e.g.* Fanger and Drakeman, 1995, *Drug News and Perspectives* 8: 133-137). Such a bispecific antibody is genetically engineered to recognize both (1) an epitope and (2) one of a variety of "trigger" molecules, *e.g.* Fc receptors on myeloid cells, and CD3 and CD2 on T cells, that have been identified as being able to cause a cytotoxic T-cell to destroy a particular target. Such bispecific antibodies can be prepared either by chemical conjugation, hybridoma, or recombinant molecular 25 biology techniques known to the skilled artisan.

Various procedures known in the art may be used for the production of polyclonal antibodies to a polypeptide, peptide or other derivative, or analog thereof encoded by a polynucleotide sequence in SEQ ID No. 1. For the production of antibody, various host animals can be immunized by injection with a polypeptide, or peptide or other derivative, or analog thereof, including but not limited 30 to rabbits, mice, rats, etc. Various adjuvants, depending on the host species, may be used to increase the immunological response, including but not limited to Stimulon™ QS-21 (Aquila Biopharmaceuticals, Inc., Framingham, MA), MPL™ (3-O-deacylated monophosphoryl lipid A; RIBI ImmunoChem Research, Inc., Hamilton, MT), aluminum phosphate, IL-12 (Genetics Institute, Cambridge, MA), Freund's (complete and incomplete), mineral gels such as aluminum hydroxide, 35 surface active substances such as lysolecithin, pluronic polyols, polyanions, peptides, oil emulsions, keyhole limpet hemocyanins, dinitrophenol, BCG (bacille Calmette-Guerin), and corynebacterium parvum. Alternatively, polyclonal antibodies may be prepared by purifying, on an affinity column

onto which a polypeptide according to the invention has been previously attached, the antibodies contained in the serum of patients infected with a bacterium belonging to the species *Chlamydia pneumoniae*.

For preparation of monoclonal antibodies directed toward a polypeptide, peptide or other derivative, or analog, any technique which provides for the production of antibody molecules by continuous cell lines in culture may be used. For example, the hybridoma technique originally developed by Kohler and Milstein (1975, *Nature* 256:495-497), as well as the trioma technique, the human B-cell hybridoma technique (Kozbor *et al.*, 1983, *Immunology Today* 4:72), and the EBV-hybridoma technique to produce human monoclonal antibodies (Cole *et al.*, 1985, in *Monoclonal Antibodies and Cancer Therapy*, Alan R. Liss, Inc., pp. 77-96). In an additional embodiment of the invention, monoclonal antibodies can be produced in germ-free animals utilizing technology described in PCT/US90/02545. In another embodiment of the invention, transgenic non-human animals can be used for the production of human antibodies utilizing technology described in WO 98/24893 and WO 96/33735. According to the invention, human antibodies may be used and can be obtained by using human hybridomas (Cote *et al.*, 1983, *Proc. Natl. Acad. Sci. U.S.A.* 80:2026-2030) or by transforming human B cells with EBV virus *in vitro* (Cole *et al.*, 1985, in Monoclonal Antibodies and Cancer Therapy, Alan R. Liss, pp. 77-96). In fact, according to the invention, techniques developed for the production of "chimeric antibodies" (Morrison *et al.*, 1984, *PROC. NATL. ACAD. SCI. U.S.A.* 81:6851-6855; Neuberger *et al.*, 1984, *Nature* 312:604-608; Takeda *et al.*, 1985, *Nature* 314:452-454) by splicing the genes from a mouse antibody molecule specific for a polypeptide, peptide or other derivative, or analog together with genes from a human antibody molecule of appropriate biological activity can be used; such antibodies are within the scope of this invention.

According to the invention, techniques described for the production of single chain antibodies (U.S. Patent 4,946,778) can be adapted to produce polypeptide or peptide-specific single chain antibodies. An additional embodiment of the invention utilizes the techniques described for the construction of Fab expression libraries (Huse *et al.*, 1989, *Science* 246:1275-1281) to allow rapid and easy identification of monoclonal Fab fragments with the desired specificity for polypeptides, derivatives, or analogs.

Antibody fragments which contain the idiotype of the molecule can be generated by known techniques. For example, such fragments include but are not limited to: the F(ab')<sub>2</sub> fragment which can be produced by pepsin digestion of the antibody molecule; the Fab' fragments which can be generated by reducing the disulfide bridges of the F(ab')<sub>2</sub> fragment, the Fab fragments which can be generated by treating the antibody molecule with papain and a reducing agent, and Fv fragments.

In addition, techniques have been developed for the production of chimerized (See, *e.g.*, Boss, M. *et al.*, U.S. Patent No. 4,816,397; and Cabilly, S. *et al.*, U.S. Patent No. 5,585,089 each of which is incorporated herein by reference in its entirety) humanized antibodies (See, *e.g.*, Queen, U.S. Patent No. 5,585,089, which is incorporated herein by reference in its entirety.) An immunoglobulin

light or heavy chain variable region consists of a "framework" region interrupted by three hypervariable regions, referred to as complementarily determining regions (CDRs). The extent of the framework region and CDRs have been precisely defined ( See, "Sequences of Proteins of Immunological Interest", Kabat, E. et al., U.S. Department of Health and Human Services (1983).  
5 Briefly, humanized antibodies are antibody molecules from non-human species having one or more CDRs from the non-human species and a framework from a human immunoglobulin molecule.

The antibodies of the invention may also be labelled in the same manner as described above for the nucleic probes of the invention such as an enzymatic, fluorescent or radioactive type labelling.

10 The invention relates, in addition, to a method for the detection and/or the identification of bacteria belonging to the species *Chlamydia pneumoniae* or to an associated microorganism in a biological sample, characterized in that it comprises the following steps:

- a) bringing the biological sample (biological tissue or fluid) into contact with a mono- or polyclonal antibody according to the invention (under conditions allowing an immunological reaction  
15 between the said antibodies and the polypeptides of the bacterium belonging to the species *Chlamydia pneumoniae* or to an associated microorganism which may be present in the biological sample, that is, under conditions suitable for the formation of immune complexes);
- b) detecting the antigen-antibody complex which may be formed.

20 Also falling within the scope of the invention is a kit or set for the detection and/or the identification of bacteria belonging to the species *Chlamydia pneumoniae* or to an associated microorganism, characterized in that it comprises the following components:

- a polyclonal or monoclonal antibody according to the invention, labeled where appropriate;
- where appropriate, a reagent for constituting the medium appropriate for carrying out the  
25 immunological reaction;
- a reagent allowing the detection of the antigen-antibody complexes produced by the immunological reaction, it being possible for this reagent also to carry a label, or to be capable of being recognized in turn by a labelled reagent, more particularly in the case where the said monoclonal or polyclonal antibody is not labelled;
- 30 - where appropriate, reagents for carrying out the lysis of the cells in the sample tested.

The principle of the DNA chip which was explained above may also be used to produce protein "chips" on which the support has been coated with a polypeptide or an antibody according to the invention, or arrays thereof, in place of the DNA. These protein "chips" make it possible, for example, to analyze the biomolecular interactions (BIA) induced by the affinity capture of target  
35 analytes onto a support coated, for example, with proteins, by surface plasma resonance (SPR). Reference may be made, for example, to the techniques for coupling proteins onto a solid support which are described in EP 524 800 or to the methods describing the use of biosensor-type protein



chips such as the BIAcore-type technique (Pharmacia) (Arlinghaus et al., 1997, Krone et al., 1997, Chatelier et al., 1995). These polypeptides or antibodies according to the invention, capable of specifically binding antibodies or polypeptides derived from the sample to be analysed, may thus be used in protein chips for the detection and/or the identification of proteins in samples. The said protein  
5 chips may in particular be used for infectious diagnosis and may preferably contain, per chip, several polypeptides and/or antibodies of the invention of different specificity, and/or polypeptides and/or antibodies capable of recognizing microorganisms different from *Chlamydia pneumoniae*.

Accordingly, the subject of the present invention is also the polypeptides and the antibodies according to the invention, characterized in that they are immobilized on a support, in  
10 particular of a protein chip.

The protein chips, characterized in that they contain at least one polypeptide or one antibody according to the invention immobilized on the support of the said chip, also form part of the invention.

The invention comprises, in addition, a protein chip according to the invention,  
15 characterized in that it contains, in addition, at least one polypeptide of a microorganism different from *Chlamydia pneumoniae* or at least one antibody directed against a compound of a microorganism different from *Chlamydia pneumoniae*, immobilized on the support of the said chip.

The invention also relates to a kit or set for the detection and/or the identification of bacteria belonging to the species *Chlamydia pneumoniae* or to an associated microorganism, or for the  
20 detection and/or the identification of a microorganism characterized in that it comprises a protein chip according to the invention.

The subject of the present invention is also a method for the detection and/or the identification of bacteria belonging to the species *Chlamydia pneumoniae* or to an associated microorganism in a biological sample, characterized in that it uses a nucleotide sequence according to  
25 the invention.

More particularly, the invention relates to a method for the detection and/or the identification of bacteria belonging to the species *Chlamydia pneumoniae* or to an associated microorganism in a biological sample, characterized in that it comprises the following steps:

- a) where appropriate, isolation of the DNA from the biological sample to be analysed, or optionally  
30 production of a cDNA from the RNA in the biological sample;
- b) specific amplification of the DNA of bacteria belonging to the species *Chlamydia pneumoniae* or to an associated microorganism with the aid of at least one primer according to the invention;
- c) detection of the amplification products.

35 These may be detected, for example, by the molecular hybridization technique using a nucleic probe according to the invention. This probe will be advantageously labelled with a nonradioactive (cold probe) or radioactive element.

For the purposes of the present invention, "DNA in the biological sample" or "DNA contained in the biological sample" will be understood to mean either the DNA present in the biological sample considered, or optionally the cDNA obtained after the action of a reverse transcriptase-type enzyme on the RNA present in the said biological sample.

5 Another aim of the present invention consists in a method according to the invention, characterized in that it comprises the following steps:

- a) bringing a nucleotide probe according to the invention into contact with a biological sample, the DNA contained in the biological sample having, where appropriate, been previously made accessible to hybridization, under conditions allowing the hybridization of the probe to  
10 complementary base pairs of the DNA of a bacterium belonging to the species *Chlamydia pneumoniae* or to an associated microorganism;
- b) detecting the hybridization complex formed between the nucleotide probe and the DNA in the biological sample.

The present invention also relates to a method according to the invention, characterized in  
15 that it comprises the following steps:

- a) bringing a nucleotide probe immobilized on a support according to the invention into contact with a biological sample, the DNA in the sample having, where appropriate, been previously made accessible to hybridization, under conditions allowing the hybridization of the probe to the DNA of a bacterium belonging to the species *Chlamydia pneumoniae* or to an associated  
20 microorganism;
- b) bringing the hybrid formed between the nucleotide probe immobilized on a support and the DNA contained in the biological sample, where appropriate after removal of the DNA in the biological sample which has not hybridized with the probe, into contact with a labelled nucleotide probe according to the invention;
- 25 c) detecting the new hybrid formed in step b).

According to an advantageous embodiment of the method for the detection and/or the identification defined above, it is characterized in that, prior to step a), the DNA in the biological sample is primer-extended and/or amplified beforehand with the aid of at least one primer according to the invention.

30 The invention relates, in addition, to a kit or set for the detection and/or the identification of bacteria belonging to the species *Chlamydia pneumoniae* or to an associated microorganism, characterized in that it comprises the following components:

- a) a nucleotide probe according to the invention;
- b) where appropriate, the reagents necessary for carrying out a hybridization reaction;
- 35 c) where appropriate, at least one primer according to the invention as well as the reagents (e.g., polymerase and/or deoxynucleotide triphosphates) necessary for a DNA amplification reaction.

The invention also relates to a kit or set for the detection and/or the identification of bacteria belonging to the species *Chlamydia pneumoniae* or to an associated microorganism, characterized in that it comprises the following components:

- a) a nucleotide probe, called capture probe, according to the invention;
- 5 b) an oligonucleotide probe, called detection probe, according to the invention;
- c) where appropriate, at least one primer according to the invention as well as the reagents (e.g., polymerase and/or deoxynucleotide triphosphates) necessary for a DNA amplification reaction.

The invention also relates to a kit or set for the detection and/or the identification of  
10 bacteria belonging to the species *Chlamydia pneumoniae* or to an associated microorganism, characterized in that it comprises the following components:

- a) at least one primer according to the invention;
- b) where appropriate, the reagents necessary for carrying out a DNA amplification reaction;
- c) where appropriate, a component which makes it possible to check the sequence of the amplified  
15 fragment, more particularly an oligonucleotide probe according to the invention.

The invention relates, in addition, to a kit or set for the detection and/or the identification of bacteria belonging to the species *Chlamydia pneumoniae* or to an associated microorganism, or for the detection and/or the identification of a microorganism characterized in that it comprises a DNA chip according to the invention.

20 The invention also relates to a method or to a kit or set according to the invention for the detection and/or the identification of bacteria belonging to the species *Chlamydia pneumoniae*, characterized in that the said primer and/or the said probe according to the invention are chosen from the nucleotide sequences specific to the species *Chlamydia pneumoniae*, in that the said polypeptides according to the invention are chosen from the polypeptides specific to the species *Chlamydia*  
25 *pneumoniae* and in that the said antibodies according to the invention are chosen from the antibodies directed against the polypeptides according to the invention chosen from the polypeptides specific to the species *Chlamydia pneumoniae*.

Preferably, the said method or the said kit or set above according to the invention, for the detection and/or the identification of bacteria belonging to the species *Chlamydia pneumoniae* is  
30 characterized in that the said primer and/or the said probe or the said polypeptides are chosen from the nucleotide sequences or polypeptides according to the invention which have been identified as being specific to the species *Chlamydia pneumoniae* and in that the said antibodies according to the invention are chosen from the antibodies directed against the polypeptides according to the invention chosen from the polypeptides identified as being specific to the species *Chlamydia pneumoniae*.

35 The invention relates, in addition, to a method or a kit or set according to the invention for the diagnosis of predispositions to, or of a condition caused by, cardiovascular diseases, preferably linked to the presence of atheroma, which are induced or worsened by a *Chlamydia pneumoniae*

infection.

The invention also relates to a method or a kit or set according to the invention for the diagnosis of predispositions to, or of conditions caused by, respiratory diseases induced or worsened by a *Chlamydia pneumoniae* infection; preferably, the said respiratory disease is asthma.

5 According to another aspect, the subject of the invention is the use of polypeptides according to the invention, of cells transformed with a vector according to the invention and/or of transformed animals according to the invention, for the biosynthesis or the biodegradation of organic or inorganic compounds.

10 As has been mentioned above, the nucleotide sequences of the invention were identified by homology with sequences known to encode, for example, polypeptides or fragments of enzymatic polypeptides involved in the biosynthesis or the biodegradation of organic or inorganic molecules.

It is thus possible to use the said polypeptides of the invention in a similar manner for the biosynthesis or the biodegradation of organic or inorganic compounds of industrial or therapeutic interest (called compounds of interest).

15 Among these polypeptides, there may be mentioned in particular the enzymes involved in metabolism, such as the proteolytic enzymes, amino transferases, glucose metabolism, or the enzymes which may be used in the biosynthesis of sugars, amino acids, fatty acids, polypeptides, nucleotides, nucleic acids or any other organic or inorganic compound or in the biodegradation of organic or inorganic compounds.

20 Among these polypeptides, there may be mentioned, in addition, the mutated or modified enzymes corresponding to mutated or modified polypeptides according to the invention which may also be used for the biosynthesis or the biodegradation of organic or inorganic compounds at the industrial level, such as, for example, the production of compounds of interest, the reprocessing of manufacturing residues applied to the food industries, to the papermaking industry or to the chemical  
25 and pharmaceutical industries.

The methods of biosynthesis or biodegradation of organic or inorganic compounds, characterized in that they use a polypeptide or one of its representative fragments according to the invention, transformed cells according to the invention and/or a transformed animal according to the invention, also form part of the invention.

30 The invention relates, in addition, to the use of a nucleotide sequence according to the invention, of a polypeptide according to the invention, of an antibody according to the invention, of a cell according to the invention, and/or of a transformed animal according to the invention, for the selection of an organic or inorganic compound capable of modulating, regulating, inducing or inhibiting the expression of genes, and/or of modifying the cellular replication of eukaryotic or  
35 prokaryotic cells or capable of inducing, inhibiting or worsening the pathologies linked to an infection by *Chlamydia pneumoniae* or one of its associated microorganisms.

The invention also comprises screening assays that comprise methods of selecting

compounds capable of binding to a polypeptide, fusion polypeptide or one of its representative fragments according to the invention, capable of binding to a nucleotide sequence according to the invention, or capable of recognizing an antibody according to the invention, and/or capable of modulating, regulating, inducing or inhibiting the expression of genes, and/or of modifying the growth  
5 or the cellular replication of eukaryotic or prokaryotic cells, or capable of inducing, inhibiting or worsening, in an animal or human organism, the pathologies linked to an infection by *Chlamydia pneumoniae* or one of its associated microorganisms, characterized in that it comprises the following steps:

a) bringing the said compound into contact with the said polypeptide, the said nucleotide  
10 sequence, with a transformed cell according to the invention and/or administering the said compound to a transformed animal according to the invention;

b) determining the capacity of the said compound to bind with the said polypeptide or the said nucleotide sequence, or to modulate, regulate, induce or inhibit the expression of genes, or to modulate growth or cellular replication, or to induce, inhibit or worsen in the said transformed animal,  
15 the pathologies linked to an infection by *Chlamydia pneumoniae* or one of its associated microorganisms.

The transformed cells and/or animals according to the invention may advantageously serve as a model and may be used in methods for studying, identifying and/or selecting compounds capable of being responsible for pathologies induced or worsened by *Chlamydia pneumoniae*, or  
20 capable of preventing and/or of treating these pathologies such as, for example, cardiovascular or respiratory diseases. In particular, the transformed host cells, in particular bacteria of the *Chlamydia* family whose transformation with a vector according to the invention may, for example, increase or inhibit its infectivity, or modulate the pathologies usually induced or worsened by the infection, may be used to infect animals in which the onset of pathologies will be monitored. These nontransformed  
25 animals, infected for example with transformed *Chlamydia* bacteria, may serve as a study model. In the same manner, the transformed animals according to the invention may, for example, exhibit predispositions to cardiovascular and/or respiratory diseases and thus be used in methods for selecting compounds capable of preventing and/or of treating the said diseases. The said methods using the said transformed cells and/or transformed animals form part of the invention.

30 The compounds capable of being selected may be organic compounds such as polypeptides or carbohydrates or any other organic or inorganic compounds already known, or new organic compounds produced using molecular modeling techniques and obtained by chemical or biochemical synthesis, these techniques being known to persons skilled in the art.

The said selected compounds may be used to modulate the growth and/or the cellular  
35 replication of *Chlamydia pneumoniae* or any other associated microorganism and thus to control infection by these microorganisms. The said compounds according to the invention may also be used to modulate the growth and/or the cellular replication of all eukaryotic or prokaryotic cells, in

particular tumour cells and infectious microorganisms, for which the said compounds will prove active, the methods which make it possible to determine the said modulations being well known to persons skilled in the art.

Compound capable of modulating the growth of a microorganism is understood to  
5 designate any compound which makes it possible to act, to modify, to limit and/or to reduce the development, the growth, the rate of proliferation and/or the viability of the said microorganism.

This modulation may be achieved, for example, by an agent capable of binding to a protein and thus of inhibiting or of potentiating its biological activity, or capable of binding to a membrane protein of the outer surface of a microorganism and of blocking the penetration of the said  
10 microorganism into the host cell or of promoting the action of the immune system of the infected organism directed against the said microorganism. This modulation may also be achieved by an agent capable of binding to a nucleotide sequence of a DNA or RNA of a microorganism and of blocking, for example, the expression of a polypeptide whose biological or structural activity is necessary for the growth or for the reproduction of the said microorganism.

15 Associated microorganism is understood to designate in the present invention any microorganism whose gene expression may be modulated, regulated, induced or inhibited, or whose growth or cellular replication may also be modulated by a compound of the invention. Associated microorganism is also understood to designate in the present invention any microorganism containing nucleotide sequences or polypeptides according to the invention. These microorganisms may, in some  
20 cases, contain polypeptides or nucleotide sequences identical or homologous to those of the invention may also be detected and/or identified by the detection and/or identification methods or kit according to the invention and may also serve as a target for the compounds of the invention.

The invention relates to the compounds capable of being selected by a method of selection according to the invention.

25 The invention also relates to a pharmaceutical composition comprising a compound chosen from the following compounds:

a nucleotide sequence according to the invention;

a polypeptide according to the invention;

a vector according to the invention;

30 an antibody according to the invention; and

a compound capable of being selected by a method of selection according to the invention, optionally in combination with a pharmaceutically acceptable vehicle.

An effective quantity is understood to designate a sufficient quantity of the said compound or antibody, or of a polypeptide of the invention, which makes it possible to modulate the  
35 growth of *Chlamydia pneumoniae* or of an associated microorganism.

The invention also relates to a pharmaceutical composition comprising one or more polypeptides according to the invention and/or one or more fusion polypeptides according to the

invention. Such compositions further comprise a pharmaceutically acceptable carrier or vehicle. Pharmaceutical compositions include compositions that comprise a polypeptide or fusion polypeptide that immunoreacts with seropositive serum of an individual infected with *Chlamydia pneumoniae*. In one embodiment, a pharmaceutical composition according to the invention can be utilized for the  
5 prevention or the treatment of an infection by a bacterium belonging to the species *Chlamydia pneumoniae* or by an associated microorganism.

The invention relates, in addition, to an immunogenic composition or a vaccine composition, characterized in that it comprises one or more polypeptides according to the invention and/or one or more hybrid (fusion) polypeptides according to the invention. Such compositions  
10 further comprise a pharmaceutically acceptable carrier or vehicle. Immunogenic compositions or fusion polypeptide include compositions that comprise a polypeptide that immunoreacts with seropositive serum of an individual infected with *Chlamydia pneumoniae*.

Immunogenic or vaccine compositions can also comprise DNA immunogenic or vaccine compositions comprising polynucleotide sequences of the invention operatively associated with a  
15 regulatory sequence that controls gene expression. Such compositions can include compositions that direct expression of a neutralizing epitope of *Chlamydia pneumoniae*.

The invention also comprises the use of a transformed cell according to the invention, for the preparation of a vaccine composition.

The invention also relates to a vaccine composition, characterized in that it contains a  
20 nucleotide sequence according to the invention, a vector according to the invention and/or a transformed cell according to the invention.

The invention also relates to the vaccine compositions according to the invention, for the prevention or the treatment of an infection by a bacterium belonging to the species *Chlamydia pneumoniae* or by an associated microorganism.

25 The invention also relates to the use of DNA encoding polypeptides of *Chlamydia pneumoniae*, in particular antigenic determinants, to be formulated as vaccine compositions. In accordance with this aspect of the invention, the DNA of interest is engineered into an expression vector under the control of regulatory elements, which will promote expression of the DNA, *i.e.*, promoter or enhancer elements. In one preferred embodiment, the promoter element may be cell-  
30 specific and permit substantial transcription of the DNA only in predetermined cells. The DNA may be introduced directly into the host either as naked DNA (U.S. Patent No. 5,679,647 incorporated herein by reference in their entirety) or formulated in compositions with other agents which may facilitate uptake of the DNA including viral vectors, *i.e.*, adenovirus vectors, or agents which facilitate immunization, such as bupivacaine and other local anesthetics (U.S. Patent 5,593,972 incorporated  
35 herein by reference in their entirety), saponins (U.S. Patent 5,739,118 incorporated herein by reference in their entirety) and cationic polyamines (published international application WO 96/10038 incorporated herein by reference in their entirety).

The DNA sequence encoding the antigenic polypeptide and regulatory element may be inserted into a stable cell line or cloned microorganism, using techniques, such as targeted homologous recombination, which are well known to those of skill in the art, and described e.g., in Chappel, U.S. Patent No. 4,215,051; Skoultchi, WO 91/06667 each of which is incorporated herein by reference in its entirety.

Such cell lines and microorganisms may be formulated for vaccine purposes. In yet another embodiment, the DNA sequence encoding the antigenic polypeptide and regulatory element may be delivered to a mammalian host and introduced into the host genome via homologous recombination (See, Chappel, U.S. Patent No. 4,215,051; Skoultchi, WO 91/06667 each of which is incorporated herein by reference in its entirety.

Preferably, the immunogenic and/or vaccine compositions according to the invention intended for the prevention and/or the treatment of an infection by *Chlamydia pneumoniae* or by an associated microorganism will be chosen from the immunogenic and/or vaccine compositions comprising a polypeptide or one of its representative fragments corresponding to a protein, or one of its representative fragments, of the cellular envelope of *Chlamydia pneumoniae*. The vaccine compositions comprising nucleotide sequences will also preferably comprise nucleotide sequences encoding a polypeptide or one of its representative fragments corresponding to a protein, or one of its representative fragments, of the cellular envelope of *Chlamydia pneumoniae*.

Among these preferred immunogenic and/or vaccine compositions, the most preferred are those comprising a polypeptide or one of its representative fragments, or a nucleotide sequence or one of its representative fragments whose sequences are chosen from the nucleotide or amino acid sequences identified in this functional group and listed above.

The polypeptides of the invention or their representative fragments entering into the immunogenic compositions according to the invention may be selected by techniques known to persons skilled in the art, such as for example on the capacity of the said polypeptides to stimulate T cells, which results, for example, in their proliferation or the secretion of interleukins, and which leads to the production of antibodies directed against the said polypeptides.

In mice, in which a weight dose of the vaccine composition comparable to the dose used in humans is administered, the antibody reaction is tested by collecting serum followed by a study of the formation of a complex between the antibodies present in the serum and the antigen of the vaccine composition, according to the customary techniques.

According to the invention, the said vaccine compositions will be preferably in combination with a pharmaceutically acceptable vehicle and, where appropriate, with one or more appropriate immunity adjuvants.

Various types of vaccines are currently available for protecting humans against infectious diseases: attenuated live microorganisms (*M. bovis* - BCG for tuberculosis), inactivated microorganisms (influenza virus), acellular extracts (*Bordetella pertussis* for whooping cough),



recombinant proteins (hepatitis B virus surface antigen), polysaccharides (pneumococci). Experiments are underway on vaccines prepared from synthetic peptides or from genetically modified microorganisms expressing heterologous antigens. Even more recently, recombinant plasmid DNAs carrying genes encoding protective antigens were proposed as an alternative vaccine strategy. This type of vaccination is carried out with a particular plasmid derived from an *E. coli* plasmid which does not replicate *in vivo* and which encodes only the vaccinal protein. Animals were immunized by simply injecting the naked plasmid DNA into the muscle. This technique leads to the expression of the vaccine protein *in situ* and to a cell-type (CTL) and a humoral type (antibody) immune response. This double induction of the immune response is one of the main advantages of the technique of vaccination with naked DNA.

The vaccine compositions of the present invention can be evaluated in *in vitro* and *in vivo* animal models prior to host, e.g., human, administration. For example, *in vitro* neutralization assays such as those described by Peterson et al. (1988) can be utilized. The assay described by Peterson et al. (1988) is suitable for testing vaccine compositions directed toward either *Chlamydia pneumoniae* or *Chlamydia trachomatis*.

Briefly, hyper-immune antisera is diluted in PBS containing 5% guinea pig serum, as a complement source. *Chlamydiae* ( $10^4$  IFU; infectious units) are added to the antisera dilutions. The antigen-antibody mixtures are incubated at 37EC for 45 minutes and inoculated into duplicate confluent Hep-2 or HeLa cell monolayers contained in glass vials (e.g., 15 by 45 mm), which have been washed twice with PBS prior to inoculation. The monolayer cells are infected by centrifugation at 1000X g for 1 hour followed by stationary incubation at 37E for 1 hour. Infected monolayers are incubated for 48 or 72 hours, fixed and stained with a *Chlamydiae* specific antibody, such as anti-MOMP for *C.trachomatis*, etc. IFUs are counted in ten fields at a magnification of 200X. Neutralization titer is assigned based on the dilution that gives 50% inhibition as compared to control monolayers/IFU.

The efficacy of vaccine compositions can be determined *in vivo* by challenging animal models of *Chlamydia pneumoniae* infection, e.g., mice or rabbits, with the vaccine compositions. For example, *in vivo* vaccine composition challenge studies can be performed in the murine model of *Chlamydia pneumoniae* infection described by Moazed et al. (1997). Briefly, male homozygous apoE deficient and/or C57 BL/6J mice are immunized with vaccine compositions. Post-vaccination, the mice are mildly sedated by subcutaneous injection of a mixture of ketamine and xylazine, and inoculated intranasally with a total volume of 0.03-0.05 ml of organisms suspended in SPG medium or with SPG alone. The inoculations of *Chlamydia pneumoniae* are approximately  $3 \times 10^7$  IFU/mouse. The mice are inoculated with *Chlamydia pneumoniae* at 8, 10, and 12 weeks of age. Tissues are then collected from the lung, spleen, heart, etc. at 1-20 weeks after the first inoculation. The presence of organisms is scored using PCR, histology and immunocytochemistry, or by quantitative culture/IFU after tissue homogenization.

Alternatively, *in vivo* vaccine composition challenge studies can be performed in the rabbit model of *Chlamydia pneumoniae* described by Laitinen et al. (1997). Briefly, New Zealand white rabbits (5 months old) are immunized with the vaccine compositions. Post-vaccination, the rabbits are sedated with Hypnorm, 0.3 ml/Kg of body weight, intramuscularly, and inoculated intranasally with a total of 0.5 ml of *Chlamydia pneumoniae* suspended in SPG medium or with SPG alone. The inoculations of *Chlamydia pneumoniae* are approximately  $3 \times 10^7$  IFU/rabbit. The rabbits are reinfected in the same manner and with the same dose 3 weeks after the primary inoculation. Tissues are then collected 2 weeks after the primary infection and 1, 2, and 4 weeks after the reinfection. The presence of *Chlamydia pneumoniae* is scored using PCR, histology and immunocytochemistry, or by quantitative culture/IFU after tissue homogenization.

The vaccine compositions comprising nucleotide sequences or vectors into which the said sequences are inserted are in particular described in International Application No. WO 90/11092 and also in International Application No. WO 95/11307.

The nucleotide sequence constituting the vaccine composition according to the invention may be injected into the host after having been coupled to compounds which promote the penetration of this polynucleotide inside the cell or its transport up to the cell nucleus. The resulting conjugates may be encapsulated into polymeric microparticles, as described in International Application No. WO 94/27238 (Medisorb Technologies International).

According to another embodiment of the vaccine composition according to the invention, the nucleotide sequence, preferably a DNA, is complexed with the DEAE-dextran (Pagano et al., 1967) or with nuclear proteins (Kaneda et al., 1989), with lipids (Felgner et al., 1987) or encapsulated into liposomes (Fraley et al., 1980) or alternatively introduced in the form of a gel facilitating its transfection into the cells (Midoux et al., 1993, Pastore et al., 1994). The polynucleotide or the vector according to the invention may also be in suspension in a buffer solution or may be combined with liposomes.

Advantageously, such a vaccine will be prepared in accordance with the technique described by Tacson et al. or Huygen et al. in 1996 or alternatively in accordance with the technique described by Davis et al. in International Application No. WO 95/11307.

Such a vaccine may also be prepared in the form of a composition containing a vector according to the invention, placed under the control of regulatory elements allowing its expression in humans or animals. It is possible, for example, to use, as vector for the *in vivo* expression of the polypeptide antigen of interest, the plasmid pcDNA3 or the plasmid pcDNA1/neo, both marketed by Invitrogen ® & D Systems, Abingdon, United Kingdom). It is also possible to use the plasmid VIJns.tPA, described by Shiver et al. in 1995. Such a vaccine will advantageously comprise, in addition to the recombinant vector, a saline solution, for example a sodium chloride solution.

The immunogenic compositions of the invention can also be utilized as part of methods for immunization, wherein such methods comprise administering to a host, e.g., a human host, an

immunizing amount of the immunogenic compositions of the invention. In a preferred embodiment, the method of immunizing is a method of immunizing against *Chlamydia pneumoniae*.

A pharmaceutically acceptable vehicle is understood to designate a compound or a combination of compounds entering into a pharmaceutical or vaccine composition which does not  
5 cause side effects and which makes it possible, for example, to facilitate the administration of the active compound, to increase its life and/or its efficacy in the body, to increase its solubility in solution or alternatively to enhance its preservation. These pharmaceutically acceptable vehicles are well known and will be adapted by persons skilled in the art according to the nature and the mode of administration of the active compound chosen.

10 As regards the vaccine formulations, these may comprise appropriate immunity adjuvants which are known to persons skilled in the art, such as, for example, aluminum hydroxide, a representative of the family of muramyl peptides such as one of the peptide derivatives of N-acetyl-muramyl, a bacterial lysate, or alternatively incomplete Freund's adjuvant, Stimulon™ QS-21 (Aquila Biopharmaceuticals, Inc., Framingham, MA), MPL™ (3-O-deacylated monophosphoryl lipid A; RIBI  
15 ImmunoChem Research, Inc., Hamilton, MT), aluminum phosphate, IL-12 (Genetics Institute, Cambridge, MA).

Preferably, these compounds will be administered by the systemic route, in particular by the intravenous route, by the intranasal, intramuscular, intradermal or subcutaneous route, or by the oral route. More preferably, the vaccine composition comprising polypeptides according to the  
20 invention will be administered several times, spread out over time, by the intradermal or subcutaneous route.

Their optimum modes of administration, dosages and galenic forms may be determined according to criteria which are generally taken into account in establishing a treatment adapted to a patient, such as for example the patient's age or body weight, the seriousness of his general condition,  
25 tolerance of the treatment and the side effects observed.

The invention comprises the use of a composition according to the invention for the treatment or the prevention of cardiovascular diseases, preferably linked to the presence of atheroma, which are induced or worsened by *Chlamydia pneumoniae*.

Finally, the invention comprises the use of a composition according to the invention for  
30 the treatment or the prevention of respiratory diseases which are induced or worsened by the presence of *Chlamydia pneumoniae*, preferably asthma.

Other characteristics and advantages of the invention appear in the following examples and figures:

35 Legend to the figures :

Figure 1 : Line for the production of *Chlamydia pneumoniae* sequences

Figure 2 : Analysis of the sequences and assembling

Figure 3 : Finishing techniques

Figure 3a) : Assembly map

Figure 3b) : Determination and use of the orphan ends of the contigs

5

## EXAMPLES

### Experimental procedures

10

#### Cells

The *Chlamydia pneumoniae* strain (CM1) used by the inventors is obtained from ATCC (American Culture Type Collection) where it has the reference number ATCC 1360-VR.

It is cultured on HeLa 229 cells, obtained from the American Type Culture Collection, under the reference ATCC CCL-2.1.

#### Culture of the cells

The HeLa ATCC CCL-2.1 cells are cultured in 75-ml cell culture flasks (Corning). The culture medium is Dulbecco's modified cell culture medium (Gibco BRL No. 04101965) supplemented with MEM amino acids (Gibco BRL - No. 04301140) L (5 ml per 500 ml of medium) and 5% foetal calf serum (Gibco BRL No. 10270 batch 40G8260K) without antibiotics or antifungals.

The cell culture stock is maintained in the following manner. The cell cultures are examined under an inverted microscope. 24 hours after confluence, each cellular lawn is washed with PBS (Gibco BRL No. 04114190), rinsed and then placed for 5 min in an oven in the presence of 3 ml of trypsin (Gibco BRL No. 25200056). The cellular lawn is then detached and then resuspended in 120 ml of culture medium, the whole is stirred in order to make the cellular suspension homogeneous. 30 ml of this suspension are then distributed per cell culture flask. The flasks are kept in a CO<sub>2</sub> oven (5%) for 48 hours at a temperature of 37°C. The cell stock is maintained so as to have available daily 16 flasks of subconfluent cells. It is these subconfluent cells which will be used so as to be infected with Chlamydia. 25-ml cell culture flasks are also used, these flasks are prepared in a similar manner but the volumes used for maintaining the cells are the following: 1 ml of trypsin, 28 ml of culture medium to resuspend the cells, 7 ml of culture medium are used per 25-ml flask.

#### Infection of the cells with Chlamydia

Initially, the Chlamydiae are obtained frozen from ATCC (-70°C), in suspension in a volume of 1 ml. This preparation is slowly thawed, 500 µl are collected and brought into contact with subconfluent cells, which are obtained as indicated above, in a 25-ml cell culture flask, containing 1 ml of medium, so as to cover the cells. The flask is then centrifuged at 2000 rpm in a "swing" rotor for microtitre plates, the centrifuge being maintained at a temperature of 35°C. After centrifugation,

the two flasks are placed in an oven at 35°C for three hours. 6 ml of culture medium containing cycloheximide (1 µg/ml) are then added and the flask is stored at 35°C. After 72 hours, the level of infection is evaluated by direct immunofluorescence and by the cytopathogenic effect caused to the cells.

5        Direct immunofluorescence

Starting with infected cells, which were obtained as indicated above, a cellular smear is deposited with a Pasteur pipette on a microscope slide. The cellular smear is fixed with acetone for 10 minutes; after draining the acetone, the smear is covered with 30 µl of murine monoclonal antibodies directed against MOMP (major outer membrane protein) of *Chlamydia* (Syva, Biomérieux) 10 labelled with fluorescein isothiocyanate. The whole is then incubated in a humid chamber at a temperature of 37°C. The slides are then rinsed with water, slightly dried, and then after depositing a drop of mounting medium, a coverslip is mounted before reading. The reading is carried out with the aid of a fluorescence microscope equipped with the required filters (excitation at 490 nm, emission at 520 nm).

15        Harvesting of the *Chlamydia pneumoniae*

After checking the infection by direct immunofluorescence, carried out as indicated above, the culture flasks are opened under a sterile cabinet, sterile glass beads with a diameter of the order of a millimeter are placed in the flask. The flask is closed and then vigorously stirred while being maintained horizontally, the cellular lawn at the bottom, so that the glass beads can have a 20 mechanical action on the cellular lawn. Most of the cells are thus detached or broken; the effect of the stirring is observed under an optical microscope so as to ensure proper release of *Chlamydiae*.

Large-scale infection of the cell cultures

The product of the *Chlamydiae* harvest (culture medium and cellular debris) is collected with a pipette, and distributed into three cell culture flasks containing subconfluent HeLa ATCC CCL- 25 2.1 cells, obtained as indicated above. The cells thus inoculated are placed under gentle stirring (swing) in an oven at 35°C. After one hour, the flasks are kept horizontally in an oven so that the culture medium covers the cells for 3 hours. 30 ml of culture medium containing actydione (1 µg/ml) are then added to each of the flasks. The culture flasks are then stored at 35°C for 72 hours. The cells thus infected are examined under an optical microscope after 24 hours, the cytopathogenic effect is 30 evaluated by the appearance of cytoplasmic inclusions which are visible under an inverted optical microscope. After 72 hours, the vacuoles containing the *Chlamydiae* occupy the cytoplasm of the cell and push the cell nucleus sideways. At this stage, numerous cells are spontaneously destroyed and have left free elementary bodies in the culture medium. The *Chlamydiae* are harvested as described above and are either frozen at -80°C or used for another propagation.

35        Purification of the *Chlamydiae*

The product of the *Chlamydia* harvests is stored at -80°C and thawed on a water bath at

room temperature. After thawing, each tube is vigorously stirred for one minute and immersed for one minute in an ultrasound tank (BRANSON 1200); the tubes are then stirred by inverting before being centrifuged for 5 min at 2000 rpm. The supernatant is carefully removed and kept at cold temperature (ice). The supernatant is vigorously stirred and then filtered on nylon filters having pores of 5 microns in diameter on a support (Nalgene) allowing a delicate vacuum to be established under the nylon filter. For each filtration, three nylon filters are superposed; these filters are replaced after every 40 ml of filtrate. Two hundred milliliters of filtration product are kept at cold temperature, and then after stirring by inverting, are centrifuged at 10,000 rpm for 90 min, the supernatant is removed and the pellet is taken up in 10 ml of 10 mM Tris, vigorously vortexed and then centrifuged at 10,000 rpm for 90 min. The supernatant is removed and the pellet is taken up in a buffer (20 mM Tris pH 8.0, 50 mM KCl, 5 mM MgCl<sub>2</sub>) to which 800 units of DNase I (Boehringer) are added. The whole is kept at 37°C for one hour. One ml of 0.5 M EDTA is then added, the whole is vortexed and frozen at -20°C.

#### Preparation of the DNA

The Chlamydiae purified above are thawed and subjected to a proteinase K (Boehringer) digestion in a final volume of 10 ml. The digestion conditions are the following: 0.1 mg/ml proteinase K, 0.1 × SDS at 55°C, stirring every 10 min. The product of digestion is then subjected to a double extraction with phenol-chloroform, two volumes of ethanol are added and the DNA is directly recovered with a Pasteur pipette having one end in the form of a hook. The DNA is dried on the edge of the tube and then resuspended in 500 µl of 2 mM Tris pH 7.5. The DNA is stored at 4°C for at least 24 hours before being used for the cloning.

#### Cloning of the DNA

After precipitation, the DNA is quantified by measuring the optical density at 260 nm. Thirty µg of Chlamydia DNA are distributed into 10 tubes of 1.5 ml and diluted in 300 µl of water. Each of the tubes is subjected to 10 applications of ultrasound lasting for 0.5 sec in a sonicator (unisonix XL2020). The contents of the 10 tubes are then grouped and concentrated by successive extractions with butanol (Sigma B1888) in the following manner: two volumes of butanol are added to the dilute DNA mixture. After stirring, the whole is centrifuged for five minutes at 2500 rpm and the butanol is removed. This operation is repeated until the volume of the aqueous phase is less than 1 ml. The DNA is then precipitated in the presence of ethanol and of 0.5 M sodium acetate pH 5.4, and then centrifuged for thirty minutes at 15,000 rpm at cold temperature (4°C). The pellet is washed with 75% ethanol, centrifuged for five minutes at 15,000 rpm and dried at room temperature. A tenth of the preparation is analysed on a 0.8% agarose gel. Typically, the size of the DNA fragments thus prepared is between 200 and 8000 base pairs.

To allow the cloning of the DNA obtained, the ends are repaired. The DNA is distributed in an amount of 10 µg/tube, in the following reaction medium: 100 µl final volume, 1 × buffer

(Biolabs 201L), 0.5 µl BSA 0.05 mg/ml, 0.1 mM dATP, 0.1 mM each of dGTP, dCTP or dTTP, 60,000 IU T4 DNA polymerase. The reaction is incubated for thirty minutes at 16°C. The contents of each of the tubes are then grouped before carrying out an extraction with phenol-chloroform and then precipitating the aqueous phase as described above. After this step, the DNA thus prepared is phosphorylated. For that, the DNA is distributed into tubes in an amount of 10 µg per tube, and then in a final volume of 50 µl, the reaction is prepared in the following manner: 1 mM ATP, 1 × kinase buffer, 10 IU T4 polynucleotide kinase (Biolabs 201L). The preparation is incubated for thirty minutes at 37°C. The contents of the tubes are combined and a phenol-chloroform extraction and then a precipitation are carried out in order to precipitate the DNA. The latter is then suspended in 1 µl of water and then the DNA fragments are separated according to their size on a 0.8% agarose gel (1 × TAE). The DNA is subjected to an electric field of 5 V/cm and then visualized on a UV table. The fragments whose size varies between 1200 and 2000 base pairs are selected by cutting out the gel. The gel fragment thus isolated is placed in a tube and then the DNA is purified with the Qiaex kit (20021 Qiagen), according to the procedure provided by the manufacturer.

15        Preparation of the vector

14 µg of the cloning vector pGEM-5Zf (Proméga P2241) are diluted in a final volume of 150 µl and are subjected to digestion with the restriction enzyme EcoRV 300 IU (Biolabs 195S) according to the protocol and with the reagents provided by the manufacturer. The whole is placed at 37°C for 150 min and then distributed in the wells of a 0.8% agarose gel subjected to an electric field of 5 V/cm. The linearized vector is visualized on a UV table, isolated by cutting out the gel and then purified by the Qiaex kit (Qiagen 20021) according to the manufacturer's recommendations. The purification products are grouped in a tube, the volume is measured and then half the volume of phenol is added and the whole is vigorously stirred for 1 min. Half the volume of chloroform-isoamyl alcohol 24:1 is added and vigorously stirred for 1 min. The whole is centrifuged at 15,000 rpm for 5 min at 4°C, the aqueous phase is recovered and transferred into a tube. The DNA is precipitated in the presence of 0.3 M sodium acetate, pH 5.4 and 3 volumes of ethanol and placed at -20°C for 1 hour. The DNA is then centrifuged at 15,000 rpm for 30 min at 4°C, the supernatant is removed while preserving the pellet, washed twice with 70% ethanol. After drying at room temperature, the DNA is suspended in 25 µl of water.

30        Phosphorylation of the vector

25 µl of the vector prepared in the preceding step are diluted in a final volume of 500 µl of the following reaction mixture:

After repair, the DNA is subjected to a phenol-chloroform extraction and a precipitation, the pellet is then taken up in 10 µl of water, the DNA is quantified by measuring the optical density at 260 nm. The quantified DNA is ligated into the vector PGem-5Zf(+) prepared by the restriction

enzyme EcoRV and dephosphorylated (see preparation of the vector). The ligation is carried out under three conditions which vary in the ratio between the number of vector molecules and the number of insert molecules. Typically, an equimolar ratio, a ratio of 1:3 and a ratio of 3:1 are used for the ligations which are, moreover, carried out under the following conditions: vector PGEm-5Zf(+)  
5 25 ng, cut DNA, ligation buffer in a final volume of 20 µl with T4 DNA ligase (Amersham E70042X); the whole is then placed in a refrigerator overnight and then a phenol-chloroform extraction and a precipitation are carried out in a conventional manner. The pellet is taken up in 5 µl of water.

#### Transformation of the bacteria

##### Plating of the bacteria

10 Petri dishes containing LB Agar medium containing ampicillin (50 µg/ml), Xgal (280 µg/ml) [5-bromo-4-chloro-indolyl-beta-D-galactopyranoside (Sigma B-4252)], IPTG (140 µg/ml) [isopropyl-beta-D-thiogalactoside (Sigma I-6758)] are used, 50 and 100 µl of bacteria are plated for each of the ligations. The Petri dishes are placed upside down at 37°C for 15 to 16 hours in an oven. The number of "recombinant" positive clones is evaluated by counting the white colonies and  
15 the blue colonies which are thought to contain the vector alone.

##### Evaluation of the "recombinant" positive clones

Ninety-four white colonies and two blue colonies are collected with the aid of sterile cones and are deposited at the bottom of the wells of plates designed for carrying out the amplification techniques. 30 µl of the following reaction mixture are added to each well: 1.7 mM MgCl<sub>2</sub>, 0.2 mM  
20 each of dATP, dCTP, dGTP and dTTP, two synthetic oligonucleotides corresponding to sequences flanking the cloning site on either side and orienting the synthesis of the DNA in a convergent manner (0.5 µM RP and PU primers, 1 U TAQ polymerase (GibcoBRL 18038-026)).

The colonies thus prepared are subjected to a temperature of 94°C for 5 min and then to 30 thermal cycles composed of the following steps: 94°C for 40 s, 50°C for 30 s, 72°C for 180 s. The  
25 reaction is then kept for 7 min at 72°C and then kept at 4°C.

The amplification products are deposited on an agarose gel (0.8%), stained with ethidium bromide, subjected to electrophoresis, and then analysed on an ultraviolet table. The presence of an amplification fragment having a size greater than 500 base pairs indicates the presence of an insert. The bacterial clones are then prepared so as to study the sequence of their insert.

##### Sequencing

30 To sequence the inserts of the clones obtained as above, these were amplified by PCR on bacteria cultures carried out overnight using the primers for the vectors flanking the inserts. The sequence of the ends of these inserts (on average 500 bases on each side) was determined by automated fluorescent sequencing on an ABI 377 sequencer, equipped with the ABI Prism DNA  
35 Sequencing Analysis software (version 2.1.2).

##### Analysis of the sequences



The sequences obtained by sequencing in a high-yield line (Figure 1) are stored in a database; this part of the production is independent of any treatment of the sequences. The sequences are extracted from the database, avoiding all the regions of inadequate quality, that is to say the regions for which uncertainties are observed on the sequence at more than 95%. After extraction, the sequences are introduced into a processing line, the diagram of which is described in Figure 2. In a first path of this processing line, the sequences are assembled by the Gap4 software from R. Staden (Bonfield et al., 1995) (OS UNIX/SUN Solaris); the results obtained by this software are kept in the form of two files which will be used for a subsequent processing. The first of these files provides information on the sequence of each of the contigs obtained. The second file represents all the clones participating in the composition of all the contigs as well as their positions on the respective contigs.

The second processing path uses a sequence assembler (TIGR-Asmg assembler UNIX/SUN Solaris); the results of this second processing path are kept in the form of a file in the TIGR-Asmg format which provides information on the relationship existing between the sequences selected for the assembly. This assembler is sometimes incapable of linking contigs whose ends overlap over several hundreds of base pairs.

The results obtained from these two assemblers are compared with the aid of the BLAST program, each of the contigs derived from one assembly path being compared with the contigs derived from the other path.

For the two processing paths, the strict assembly parameters are fixed (95% homology, 30 superposition nucleotides). These parameters avoid 3 to 5% of the clones derived from eukaryotic cells being confused with sequences obtained from the clones derived from *Chlamydia pneumoniae*. The eukaryotic sequences are however preserved during the course of this project; the strategy introduced, which is described below, will be designed, inter alia, not to be impeded by these sequences derived from contaminating clones.

The results of these two assemblers are processed in a software developed for this project. This software operates on a Windows NT platform and receives, as data, the results derived from the STADEN software and/or the results derived from the TIGR-Asmg assembler, the software, results, after processing of the data, in the determination of an assembly map which gives the proximity relationship and the orientation of the contigs in relation to one another (Figure 3a). Using this assembly map, the software determines all the primers necessary for finishing the project. This treatment, which will be detailed below, has the advantage of distinguishing the isolated sequences derived from the contaminations, by the DNA eukaryotic cells, of the small-sized sequences clearly integrated into the project by the relationships which they establish with contigs. In order to allow, without any risk of error, the arrangement and the orientation of the contigs in relation to one another, a statistical evaluation of the accuracy of the names (naming) "naming" of sequence is made from the results of "contigation". This evaluation makes it possible to give each of the clone plates, as well as each of the subsets of plates, a weight which is inversely proportional to probable error rate existing in

the "naming" of the sequences obtained from this plate or from a subset of this plate. In spite of a low error rate, errors may occur throughout the steps of production of the clones and of the sequences. These steps are numerous, repetitive and although most of them are automated, others, like the deposition in the sequencers, are manual; it is then possible for the operator to make mistakes such as the inversion of two sequences. This type of error has a repercussion on the subsequent processing of the data, by resulting in relationships (between the contigs) which do not exist in reality, then in attempts at directed sequencing between the contigs which will end in failure. It is because of this that the evaluation of the naming errors is of particular importance since it allows the establishment of a probabilistic assembly map from which it becomes possible to determine all the clones which will serve as template to obtain sequences separating two adjacent contigs. Table 2 of parent U.S. application serial No. 60/107078 filed November 4, 1998 and French application 97-14673 filed November 21, 1997, each of which is incorporated by reference herein in its entirety, gives the clones and the sequences of the primers initially used during the initial operations.

To avoid the step which consists in ordering and then preparing the clones by conventional microbiological means, outer and inner primers oriented towards the regions not yet sequenced are defined by the software. The primers thus determined make it possible to prepare, by PCR, a template covering the nonsequenced region. It is the so-called outer primers (the ones most distant from the region to be sequenced) which are used to prepare this template. The template is then purified and a sequence is obtained on each of the two strands during 2 sequencing reactions which each use one of the 2 inner primers. In order to facilitate the use of this approach, the two outer primers and the two inner primers are prepared and then stored on the same position of 4 different 96-well plates. The two plates containing the outer primers are used to perform the PCRs which will serve to prepare the templates. These templates will be purified on purification columns preserving the topography of the plates. Each of the sequences will be obtained using primers situated on one and then on the other of the plates containing the inner primers. This distribution allows a very extensive automation of the process and results in a method which is simple to use for finishing the regions not yet sequenced. Table 3 of parent U.S. application serial No. 60/107078 filed November 4, 1998 and French application 97-14673 filed November 21, 1997, each of which is incorporated by reference herein in its entirety, gives the names and the sequences of the primers used for finishing *Chlamydia pneumoniae*.

Finally, a number of contigs exist in a configuration where one of their ends is not linked to any other contig end (Figure 3b) by a connecting clone relationship (a connecting clone is defined as a clone having one sequence end on a contig and the other end of its sequence on another contig; furthermore, this clone must be derived from a plate or a subset of plates with adequate naming quality). For the *Chlamydia pneumoniae* project, this particular case occurred 24 times. Two adjacent PCR primers orienting the synthesis of the DNA towards the end of the consensus sequence are defined for each of the orphan ends of the consensus sequence. The primer which is closest to the end

of the sequence is called the inner primer whereas the primer which is more distant from the end of the sequence is called the outer primer. The outer primers are used to explore the mutual relationship between the orphan ends of the different contigs. The presence of a single PCR product and the possibility of amplifying this product unambiguously using the inner primers evokes the probable relationship between the contigs on which the primers which allowed the amplification are situated. This relationship will be confirmed by sequencing and will allow the connection between the orphan ends of the consensus sequences. This strategy has made it possible to obtain a complete map of the *Chlamydia pneumoniae* chromosome and then to finish the project.

#### Quality control

All the bases not determined with certainty in the chromosomal sequence were noted and the density of uncertainties was measured on the entire chromosome. The regions with a high density of uncertainties were noted and the PCR primers spanning these regions were drawn and are represented in Table 4 of parent U.S. application serial No. 60/107078 filed November 4, 1998 and French application 97-14673 filed November 21, 1997 each of which is incorporated by reference herein in its entirety.

The sequence of each of the PCR products was obtained with two operational primers different from the amplification primers. The sequences were obtained in both directions for all the PCRs (100% success).

#### Data banks

Local reorganizations of major public banks were used. The protein bank used consists of the nonredundant fusion of the Genpept bank (automated translation of GenBank, NCBI; Benson et al., 1996).

The entire BLAST software (public domain, Altschul et al., 1990) for searching for homologies between a sequence and protein or nucleic data banks was used. The significance levels used depend on the length and the complexity of the region tested as well as the size of the reference bank. They were adjusted and adapted to each analysis.

The results of the search for homologies between a sequence according to the invention and protein or nucleic data banks are presented and summarized in Table 1 below.

Table 1: List of coding chromosome regions and homologies between these regions and the sequence banks.

Legend to Table 1: Open reading frames are identified with the GenMark software version 2.3A (GenePro), the template used is *Chlamydia pneumoniae* of order 4 on a length of 196 nucleotides with a window of 12 nucleotides and a minimum signal of 0.5. The reading frames ORF2 to ORF 1137 are numbered in order of appearance on the chromosome, starting with ORF2 (ORF column). The positions of the beginning and of the end are then given in column 2 (position). When the position of the beginning is greater than the position of the end, this means that the region is

encoded by the strand complementary to the sequence which was given in the sequence SEQ ID No. 1.

All the putative products were subjected to a search for homology on GENPEPT (release 102 for SEQ ID No. 2 to SEQ ID No. 1137, and release 108 for SEQ ID No. 1138 to SEQ ID No. 1291 and SEQ ID No. 6844 to SEQ ID No. 6849) with the BLASTP software (Altschul et al. 1990). With, as parameters, the default parameters with the exception of the expected value E set at  $10^{-5}$  (for SEQ ID No. 2 to SEQ ID No. 1137) and P value set at  $e^{-10}$  (for SEQ ID No. 1138 to SEQ ID No. 1291 and SEQ ID No. 6844 to SEQ ID No. 6849). Subsequently, only the identities greater than 30% (I% column) were taken into account. The description of the most homologous sequence is given in the Homology column; the identifier for the latter sequence is given in the ID column and the animal species to which this sequence belongs is given in the Species column. The Homology score is evaluated by the sum of the blast scores for each region of homology and reported in the Score column.

#### Materials and Methods for transmembrane domains:

The DAS software was used as recommended by the authors (Cserzo et al., 1997).

This method uses, to predict the transmembrane domains, templates derived from a sampling of selected proteins. All the regions for which a "Cutoff" greater than 1.5 was found by the program were taken into account.

#### Additional ORF Finder Programs

For this analysis, two additional ORF finder programs were used to predict potential open reading frames of a minimum length of 74 amino acids; Glimmer (Salzberg, S.L., Delcher, A., Kasif, S., and W. White. 1998. Microbial gene identification using interpolated Markov models. Nucleic Acids Res. 26:544-548.), and an in-house written program. The in-house program used a very simple search algorithm. The analysis required that the genomic DNA sequence text be in the 5' to 3' direction, the genome is circular, and that TAA, TAG, and TGA are stop codons. The search parameters were as follows:

- (1) A search for an ORF that started with a GTG codon was performed. If no GTG codons were found, then a search for an ATG codon was performed. However, if a GTG codon was found, then a search downstream for a ATG codon was performed. All start and stop nucleotide positions were recorded.
- (2) A search for an ORF that started with a TTG codon was performed. If no TTG codons were found, then a search for a ATG codon was performed. However, if a TTG codon was found, then a search downstream for a ATG codon was performed. All start and stop nucleotide positions were recorded.
- (3) The analysis described in steps 1 and 2 were repeated for the opposite strand of DNA sequence.

- (4) A search for ORFs that determined all ORF lengths using start and stop positions in the same reading frames was performed.
- (5) All ORFs whose DNA length was less than 225 nucleotides were eliminated from the search.

## 5 Surface Exposed Protein Search Criteria

Potential cell surface vaccine targets are outer membrane proteins such as porins, lipoproteins, adhesions and other non-integral proteins. In *Chlamydia psittaci*, the major immunogens is a group of putative outer membrane proteins (POMPs) and no homologs have been found in *Chlamydia pneumoniae* and *Chlamydia trachomatis* by traditional analysis (Longbottom, D., Russell, 10 M., Dunbar, S.M., Jones, G.E., and A.J. Herring. 1998. Molecular Cloning and Characterization of the Genes Coding for the Highly Immunogenic Cluster of 90-Kilodalton Envelope Proteins from *Chlamydia psittaci* Subtype That Causes Abortion in Sheep. Infect Immun 66:1317-1324.) Several putative outer membrane proteins have been identified in *Chlamydia pneumoniae*, all of which may represent vaccine candidates. The major outer membrane protein (MOMP) gene (omp1) has been 15 found in various isolates of *Chlamydia pneumoniae* (Jantos, CA., Heck, S., Roggendorf, R., Sen-Gupta, M., and Hegemann, JH. 1997. Antigenic and molecular analyses of different chlamydia pneumoniae strains. J. Clin Microbiology 35(3):620-623.) Various criteria, as listed below, were used to identify putative surface exposed ORFs from the genomic DNA sequence of *Chlamydia pneumoniae* (French application 97-14673 filed 21 November 1997). Any ORF which met any one or 20 more of the individual criteria were listed in this category.

Protein homology searches were done using the Blastp 2.0 tool (Altschul, S.F., Madden, T.L., Schaffer, A.A., Zhang, J., Zhang, Z., Miller, W., and D.J. Lipman. 1997. Gapped BLAST and PSI-BLAST: a new generation of protein database search programs. Nucleic Acids Res. 25:3389-3402. ) An ORF product was labeled surface exposed if there was homology to a known, or 25 hypothetical, or putative surface exposed protein with a P score better than  $e^{-10}$ .

Most, if not all, proteins that are localized to the membrane of bacteria, via a secretory pathway, contain a signal peptide. A software program, SignalP, analyzes the amino acid sequence of an ORF for such a signal peptide (Nielsen, H., Engelbrecht, J., Brunak, S., and G. von Heijne. 1997. Identification of prokaryotic and eukaryotic signal peptides and prediction of their cleavage sites. 30 Protein Engineering 10:1-6.) The first 60 N-terminal amino acids of each ORF were analyzed by SignalP using the Gram-Negative software database. The output generates four separate values, maximum C, maximum Y, maximum S, and mean S. The S-score, or signal region, is the probability of the position belonging to the signal peptide. The C-score, or cleavage site, is the probability of the position being the first in the mature protein. The Y-score is the geometric average of the C-score and 35 a smoothed derivative of the S-score. A conclusion of either a Yes or No is given next to each score. If all four conclusions are Yes and the C-terminal amino acid is either a phenylalanine (F) or a tyrosine (Y), the ORF product was labelled outer membrane (Struyve, M., Moons, M., and J. Tommassen.

1991. Carboxy-terminal Phenylalanine is Essential for the Correct Assembly of a Bacterial Outer Membrane Protein. J. Mol. Biol. 218:141-148.)

The program called Psort, determines the localization of a protein based on its signal sequence, recognition of transmembrane segments, and analysis of its amino acid composition (Nakai, K., and M. Kanehisa. 1991. Expert system for predicting protein localization sites in gram-negative bacteria. Proteins 11:95-110.) -An ORF product is considered to be an outer membrane protein if the output data predicts the protein as outer membrane with a certainty value of 0.5 or better and whose value is at least twice as large as the next predicted localized certainty value.

Finally, ORF products that were not predicted to be outer membrane or surface exposed, based on the above criteria, were further analyzed. The blastp output data for these ORFs were searched using various general and specific keywords, suggestive of known cell surface exposed proteins. An ORF was labeled surface exposed if the keywords matched had a Blastp hit, had a P score better than  $e^{-10}$ , and that there was no better data indicating otherwise. The following is a list of the searched keywords:

15

|    |              |               |         |                |                  |      |
|----|--------------|---------------|---------|----------------|------------------|------|
|    | Adhesion     | Adhesin       | Invasin | Invasion       | Extensin         |      |
|    | Omp          | Outer Surface | Porin   | Outer Membrane |                  |      |
|    | Cell Surface | Cell Wall     | Pilus   | Pilin          | Flagellar sheath | BtuB |
|    | Cir          | ChuA          | CopB    | ExeD           | FadL             | FecA |
| 20 | FepA         | FhuA          | FmdC    | FomA           | FrpB             | GspD |
|    | HemR         | HgbA          | Hgp     | HmbR           | HmuR             | HMW  |
|    | HrcC         | Hrp           | InvG    | LamB           | LbpA             | LcrQ |
|    | Lmp1         | MxiD          | MOMP    | PilE           | HpaA             | NolW |
|    | NspA         | OpcP          | OpnP    | Opr            | OspA             | PhoE |
| 25 | PldA         | Por           | PscC    | PulD           | PupA             | QuiX |
|    | RafY         | ScrY          | SepC    | ShuA           | SomA             | SpiA |
|    | Tbp1         | Yop           | YscC    | mip            | Tol              |      |

Those ORFs that did not meet the minimum requirement for being an outer membrane protein based on the above search criteria but which were homologous to identified outer membrane ORFs in *Chlamydia trachomatis* were included. The *Chlamydia trachomatis* genome (French patent applications FR97-15041, filed 28 November 1997 and 97-16034 filed 17 December 1997) was analyzed using the above search criteria and a number of outer membrane ORFs were identified. These *Chlamydia trachomatis* ORFs were then tested against the *Chlamydia pneumoniae* genome using Blastp. Any *Chlamydia pneumoniae* ORF with a Blastp P value better than  $e^{-10}$  against a *Chlamydia trachomatis* outer membrane was included in this section, if there was no better data

indicating otherwise. A list of ORFs in the *Chlamydia pneumoniae* genome encoding putative surface exposed proteins is set forth above in the specification.

Identification of Putative Lipoproteins in the Genome of *Chlamydia pneumoniae*

5 Lipoproteins are the most abundant post-translationally modified bacterial secretory proteins (Pugsley, A. P., 1993. The complete general secretory pathway in Gram-negative bacteria. Microbiol. Rev. 57:50-108). The characteristic features of lipoproteins are a thiol-linked diacylglyceride and an amine-linked monoacyl group on the cysteine that becomes the amino-terminal residue after signal peptide cleavage by Signal Peptidase II.  
10 (Pugsley, A. P., 1993. The complete general secretory pathway in Gram-negative bacteria. Microbiol. Rev. 57:50-108). The identification of putative lipoproteins from the genomic sequencing of *Chlamydia pneumoniae* was done by examining the deduced amino acid sequence of identified ORFs for the presence of a signal peptide with a Signal Peptidase II cleavage site analogous to the consensus sequence for prolipoprotein modification and  
15 processing reactions (Hayashi, S., and H. C. Wu. 1992. Identification and characterization of lipid-modified proteins in bacteria, p. 261-285. In N. M. Hooper and A. J. Turner (ed.) Lipid modification of proteins: A practical approach. Oxford University Press, New York; Sutcliffe, I. C. and R. R. B. Russell. 1995. Lipoproteins of Gram-positive bacteria. J. Bacteriol. 177:1123-1128.).

20 *Chlamydia pneumoniae* ORFs were initially screened for the most basic of lipoprotein characteristics, a cysteine in the first 30 amino acids of the deduced protein. ORFs with a standard start codon (ATG, GTG, or TTG) and having one or more of the following characteristics were selected for direct analysis of their first 30 amino acids:

- (a) Significant Signal P value (at least two out of the four values are Yes)  
25
- (b) PSORT value indicating membrane passage (IM-inner membrane, Peri-periplasm, or OM-outer membrane)
- (c) Identification of the word lipoprotein among the ORF blastp data set.
- 30 (d) A Blastp value of  $<e^{-10}$  with a putative lipoprotein from *Chlamydia trachomatis* (French applications 97-15041 filed 28 November 1997 and 97-16034 filed 17 December 1997).

The first 30 amino acids of each ORF in this set were analyzed for the characteristics commonly found in lipoprotein signal peptides (Pugsley, A. P., 1993. The complete general secretory  
35 pathway in Gram-negative bacteria. Microbiol. Rev. 57:50-108; Hayashi, S., and H. C. Wu. 1992.

Identification and characterization of lipid-modified proteins in bacteria, p. 261-285. In N. M. Hooper and A. J. Turner (ed.) Lipid modification of proteins: A practical approach. Oxford University Press, New York; Sutcliffe, I. C. and R. R. B. Russell. 1995. Lipoproteins of Gram-positive bacteria. J. Bacteriol. 177:1123-1128.) Putative lipoprotein signal peptides were required to have a cysteine between amino acid 10 and 30 and reach a minimum score of three based on the following criteria for lipoprotein signal peptides:

- (a) Identification of specific amino acids in specific positions around the cysteine which are part of the consensus Signal Peptidase II cleavage site (Hayashi, S., and H. C. Wu. 1992. Identification and characterization of lipid-modified proteins in bacteria, p. 261-285. In N. M. Hooper and A. J. Turner (ed.) Lipid modification of proteins: A practical approach. Oxford University Press, New York); Sutcliffe, I. C. and R. R. B. Russell. 1995. Lipoproteins of Gram-positive bacteria. J. Bacteriol. 177:1123-1128). Since the identification of the cleavage site is the most important factor in identifying putative lipoproteins, each correctly positioned amino acid contributed toward reaching the minimum score of three.
- (b) A hydrophobic region rich in alanine and leucine prior to the cleavage site (Pugsley, A. P.. 1993. The complete general secretory pathway in Gram-negative bacteria. Microbiol. Rev. 57:50-108) contributed toward reaching the minimum score of three.
- (c) A short stretch of hydrophilic amino acids greater than or equal to 1 usually lysine or arginine following the N-terminal methionine (Pugsley, A. P.. 1993. The complete general secretory pathway in Gram-negative bacteria. Microbiol. Rev. 57:50-108) contributed toward reaching the minimum score of three.

A list of ORFs in the *Chlamydia pneumoniae* genome encoding putative lipoproteins is set forth above in the specification.

#### 25 LPS-Related ORFs of *Chlamydia pneumoniae*

Lipopolysaccharide (LPS) is an important major surface antigen of *Chlamydia* cells. Monoclonal antibodies (Mab) directed against LPS of *Chlamydia pneumoniae* have been identified that can neutralize the infectivity of *Chlamydia pneumoniae* both in vitro and in vivo (Peterson, E.M., de la Maza, L.M., Brade, L., Brade, H. 1998. Characterization of a Neutralizing Monoclonal Antibody Directed at the Lipopolysaccharide of *Chlamydia pneumoniae*. Infect. Immun. Aug. 66(8):3848-3855.) Chlamydial LPS is composed of lipid A and a core oligosaccharide portion and is phenotypically of the rough type (R-LPS) (Lukacova, M., Baumann, M., Brade, L., Mamat, U., Brade, H. 1994. Lipopolysaccharide Smooth-Rough Phase Variation in Bacteria of the Genus *Chlamydia*. Infect. Immun. June 62(6):2270-2276.) The lipid A component is composed of fatty acids which serve to anchor LPS in the outer membrane. The core component contains sugars and sugar derivatives such as a trisaccharide of 3-deoxy-D-manno-octulosonic acid (KDO) (Reeves, P.R., Hobbs, M., Valvano, M.A., Skurnik, M., Whitfield, C., Coplin, D., Kido, N., Klena, J., Maskell, D.,



- Raetz, C.R.H., Rick, P.D. 1996. *Bacterial Polysaccharide Synthesis and Gene Nomenclature* pp. 10071-10078, Elsevier Science Ltd.). The KDO gene product is a multifunctional glycosyltransferase and represents a shared epitope among the Chlamydia. For a review of LPS biosynthesis see, e.g., Schnaitman, C.A., Klena, J.D. 1993. Genetics of Lipopolysaccharide
- 5 Biosynthesis in Enteric Bacteria. Microbiol. Rev. 57:655-682.

A text search of the ORF blastp results identified several genes that are involved in Chlamydial LPS production with a P score better than  $e^{-10}$ . The following key-terms were used in the text search: KDO, CPS (Capsular Polysaccharide Biosynthesis), capsule, LPS, rfa, rfb, rfc, rfe, rha, rhl, core, epimerase, isomerase, transferase, pyrophosphorylase, phosphatase, aldolase, heptose,

10 manno, glucose, lpxB, fibronectin, fibrinogen, fucosyltransferase, lic, lgt, pgm, tolC, rol, ChoP, phosphorylcholine, waaF, PGL-Tb1. A list of ORFs in the *Chlamydia pneumoniae* genome encoding putative polypeptides involved in LPS biosynthesis is set forth above in the specification.

### Type III And Other Secreted Products

- 15 Type III secretion enables gram-negative bacteria to secrete and inject pathogenicity proteins into the cytosol of eukaryotic host cells (Hueck, C. J., 1998. Type III Protein Secretion Systems in Bacterial Pathogens of Animals and Plants. In Microbiology and Molecular Biology Reviews. 62:379-433.) These secreted factors often resemble eukaryotic signal transduction factors, thus enabling the bacterium to redirect host cell functions (Lee, C.A., 1997. Type III secretion
- 20 systems: machines to deliver bacterial proteins into eukaryotic cells? Trends Microbiol. 5:148-156.) In an attempt to corrupt normal cellular functions, Chlamydial pathogenicity factors injected into the host cytosol will nonetheless, as cytoplasmic constituents be processed and presented in the context of the Major Histocompatibility Complex (MHC class I). As such, these pathogenicity proteins represent MHC class I antigens and will play an important role in cellular immunity. Also included in this set
- 25 are secreted non-type III products that may play a role as vaccine components.

A text search of the ORF blastp results identified genes that are involved in *Chlamydia pneumoniae* protein secretion with a P score better than  $e^{-10}$ . The following key-terms were used in the text search in an effort to identify surface localized or secreted products: Yop, Lcr, Ypk, Exo, Pcr, Pop, Ipa, Vir, Ssp, Spt, Esp, Tir, Hrp, Mxi, hemolysin, toxin, IgA protease, cytolysin, tox, hap,

30 secreted and Mip.

*Chlamydia pneumoniae* ORFs that did not meet the above keyword search criteria, but have homologs in *Chlamydia trachomatis* that do meet the search criteria are included herein. The *Chlamydia trachomatis* genome (French patent applications FR97-15041, filed 28 November 1997 and 97-16034 filed 17 December 1997) was analyzed using the above search criteria and a number of

35 ORFs were identified. These *Chlamydia trachomatis* ORFs were tested against the *Chlamydia pneumoniae* genome using Blastp. Any *Chlamydia pneumoniae* ORF with a Blastp P value  $< e^{-10}$  against a *Chlamydia trachomatis* homolog, identified using the above search criteria, was included. A

list of ORFs in the *Chlamydia pneumoniae* genome encoding putative secreted proteins is in the specification.

*Chlamydia pneumoniae*: RGD Recognition Sequence

5 Proteins that contain Arg-Gly-Asp (RGD) attachment site, together with integrins that serve as their receptor constitute a major recognition system for cell adhesion. The RGD sequence is the cell attachment site of a large number of adhesive extracellular matrix, blood, and cell surface proteins and nearly half of the known integrins recognize this sequence in their adhesion protein ligands. There are many RGD containing microbial proteins such as the penton protein of adenovirus, 10 the coxsackie virus, the foot and mouth virus and pertactin, a 69 kDa (kilodalton) surface protein of *Bordetella pertussis*, that serve as ligands through which these microbes bind to integrins on the cell surfaces and gain entry into the cell. The following provides evidence supporting the importance of RGD in microbial adhesion:

15 a) The adenovirus penton base protein has a cell rounding activity and when penton base was expressed in *E. coli*, it caused cell rounding and cells adhered to polystyrene wells coated with the protein. Mutant analysis showed that both these properties required an RGD sequence. Virus mutants with amino acid substitutions in the RGD sequence, showed much less adherence to HeLa S3 cells, and also were delayed in virus reproduction (Bai, M., Harfe, B., and Freimuth, P. 1993. Mutations That Alter an RGD Sequence in the Adenovirus Type 2 20 Penton Base Protein Abolish Its Cell-Rounding Activity and Delay Virus Reproduction in Flat Cells. *J. Virol.* 67:5198-5205).

25 b) It has been shown that attachment and entry of coxsackie virus A9 to GMK cells were dependent on an RGD motif in the capsid protein VP1. VP1 has also been shown to bind  $\alpha_v\beta_3$  integrin, which is a vitronectin receptor (Roivainen, M., Piirainen, L., Hovi, T., Virtanen, I., Riikonen, T., Heino, J., and Hyypia, T. 1994. Entry of Coxsackievirus A9 into Host Cells: Specific Interactions with  $\alpha_v\beta_3$  Integrin, the Vitronectin Receptor *Virology*, 203:357-65).

30 c) During the course of whooping cough, *Bordetella pertussis* interacts with alveolar macrophages and other leukocytes on the respiratory epithelium. Whole bacteria adheres by means of two proteins, filamentous hemagglutinin (FHA) and pertussis toxin. FHA interacts with two classes of molecules on macrophages, galactose containing glycoconjugates and the integrin CR3. The interaction between CR3 and FHA involves recognition of RGD sequence at the positions 1097-1099 in FHA (Relman, D., Tuomanen, E., Falkow, S., Golenbock, D. T., 35 Saukkonen, K., and Wright, S. D. "Recognition of a Bacterial Adhesin by an Integrin: Macrophage CR3 Binds Filamentous Hemagglutinin of *Bordetella Pertussis*." *Cell*, 61:1375-1382 (1990)).

5 d) Pertactin, a 69 kDa outer membrane protein of *Bordetella pertussis*, has been shown to promote attachment of Chinese hamster ovary cells (CHO). This attachment is mediated by recognition of RGD sequence in pertactin by integrins on CHO cells and can be inhibited by synthetic RGD containing peptide homologous to the one present in pertactin (Leininger, E., Roberts, M., Kenimer, J. G., Charles, I. G., Fairweather, N., Novotny, P., and Brennan, M. J. 1991. Pertactin, an Arg-Gly-Asp containing *Bordetella pertussis* surface protein that promotes adherence of mammalian cells Proc. Natl. Acad. Sci. USA, 88:345-349).

10 e) The RGD sequence is highly conserved in the VP1 protein of foot and mouth disease virus (FMDV). Attachment of FMDV to baby hamster kidney cells (BHK) has been shown to be mediated by VP1 protein via the RGD sequence. Antibodies against the RGD sequence of VP1 blocked attachment of virus to BHK cells (Fox, G., Parry, N. R., Barnett, P. V., McGinn, B., Rowland, D. J., and Brown, F. 1989. The  
15 Cell Attachment Site on Foot-and-Mouth Disease Virus Includes the Amino Acid Sequence RGD (Arginine-Glycine-Aspartic Acid) J. Gen. Virol., 70:625-637).

It has been demonstrated that bacterial adherence can be based on interaction of a bacterial adhesin RGD sequence with an integrin and that bacterial adhesins can have multiple binding site characteristic of eukaryotic extracellular matrix proteins. RGD recognition is one of the important  
20 mechanisms used by microbes to gain entry into eukaryotic cells.

The complete deduced protein sequence of the *Chlamydia pneumoniae* genome was searched for the presence of RGD sequence. There were a total of 54 ORFs that had one or more RGD sequences. Not all RGD containing proteins mediate cell attachment. It has been shown that RGD containing peptides that have proline immediately following the RGD sequence are inactive in cell  
25 attachment assays (Pierschbacher & Ruoslahti. 1987. Influence of stereochemistry of the sequence Arg-Gly-Asp-Xaa on binding specificity in cell adhesion. J. Biol. Chem. 262:17294-98). ORFs that had RGD, with proline as the amino acid following the RGD sequence were excluded from the list. Also, RGD sequence may not be available at the surface of the protein or may be present in a context that is not compatible with integrin binding. Since not all RGD- containing proteins are involved in  
30 cell attachment, several other criteria were used to refine the list of RGD- containing proteins. A list of ORFs in the *Chlamydia pneumoniae* genome encoding polypeptides with RGD recognition sequence(s) is in the specification.

#### Non-*Chlamydia trachomatis* ORFs

35 *Chlamydia pneumoniae* ORFs were compared to the ORFs in the *Chlamydia trachomatis* genome (French patent applications FR97-15041, filed 28 November 1997 and 97-16034 filed 17 December 1997) using Blastp. Any *Chlamydia pneumoniae* ORF with a Blastp P value worse than e

<sup>10</sup> (i.e.  $>10^{-10}$ ) against *Chlamydia trachomatis*. ORFs are included in this section. A list of ORFs in the *Chlamydia pneumoniae* genome which are not found in *Chlamydia trachomatis* is set forth above in the specification.

#### 5            Cell Wall Anchor Surface ORFs

Many surface proteins are anchored to the cell wall of Gram-positive bacteria via the conserved LPXTG motif (Schneewind, O., Fowler, A., and Faull, K.F. 1995. Structure of the Cell Wall Anchor of Surface Proteins in *Staphylococcus aureus*. Science 268:103-106). A search of the *Chlamydia pneumoniae* ORFs was done using the motif LPXTG. A list of ORFs in the *Chlamydia*  
<sup>10</sup> *pneumoniae* genome encoding polypeptides anchored to the cell wall is in the specification.

#### ATCC Deposits

Samples of *Chlamydia pneumoniae* were deposited with the American Type Culture Collection (ATCC), Rockville, Maryland, on November 19, 1998 and assigned the accession  
<sup>15</sup> number ---. Cells can be grown, harvested and purified, and DNA can be prepared as discussed above. In order to enable recovery of specific fragments of the chromosome, one can run targeted PCR reactions, whose amplification products can then be sequenced and/or cloned into any suitable vector, according to standard procedures known to those skilled in the art.

In addition, a sample of three pools of clones covering chromosomal regions of interest  
<sup>20</sup> were deposited with the American Type Culture Collection (ATCC), Rockville, Maryland, on November 19, 1998 and assigned the indicated accession number: —. Each pool of clones contains a series of clones. When taken together, the three pools in the sample cover a portion of the chromosome, with a redundancy of slightly more than two. The total number of clones in the sample is 196.

<sup>25</sup>            The clones cover the following three regions of interest:

- (i) position 30,000 to 40,000 of SEQ ID No. 1, referred to as region A;
- (ii) position 501,500 to 557,000 of SEQ ID No. 1, referred to as region B; and
- (iii) position 815,000 to 830,000 of SEQ ID No. 1, referred to as region C.

Table 4 lists groups of oligonucleotides to be used to amplify each of ORFs 2-1291  
<sup>30</sup> according to standard procedures known to those skilled in the art. Such oligonucleotides are listed as SEQ ID Nos. 1292 to 6451. For each ORF, the following is listed: one forward primer positioned 2,000 bp upstream of the beginning of the ORF; one forward primer positioned 200 bp upstream of the beginning of the ORF; one reverse primer positioned 2,000 bp downstream at the end of ORF, which is 2,000 bp upstream of the end site of the ORF on the complementary strand;  
<sup>35</sup> and one reverse primer 200 bp downstream at the end of ORF, which is 200 bp upstream of the end site of the ORF on the complementary strand. The corresponding SEQ ID Nos. for the primers are listed in Table 4, where Fp is the proximal forward primer; Fd is the distal forward

primer; Bp is the proximal reverse primer; and Bd is the distal reverse primer. The positions of the 5' ends of each of these primers on the nucleotide sequence of SEQ ID No. 1 are shown in Table 5.

Table 6 lists oligonucleotides (SEQ ID Nos. 6452-6843) to be used to amplify the inserts of each of the 196 clones present in the pooled sample according to standard procedures well known to those of skill in the art. These primers can also be utilized to amplify the chromosomal region corresponding to the region A, B or C within which the particular insert lies. Their positions are indicated in Table 7.

The present invention is not to be limited in scope by the specific embodiments described herein, which are intended as single illustrations of individual aspects of the invention, and functionally equivalent methods and components are within the scope of the invention. Indeed, various modifications of the invention, in addition to those shown and described herein will become apparent to those skilled in the art from the foregoing description and accompanying drawings. Such modifications are intended to fall within the scope of the appended claims.

All publications and patent applications mentioned in this specification are herein incorporated by reference to the same extent as if each individual publication or patent application was specifically and individually indicated to be incorporated by reference.

| TABLE 1 |       |       |  |        |                              |  | Score | I% |
|---------|-------|-------|--|--------|------------------------------|--|-------|----|
| ORF     | Begin | End   | Homology                               | ID     | Species                      |  |       |    |
| ORF2    | 42    | 794   | triosephosphate isomerase              | L27492 | <i>Thermotoga maritima</i>   |  | 567   | 54 |
| ORF3    | 1258  | 1614  | putative                               |        |                              |  |       |    |
| ORF4    | 1807  | 2418  | polypeptide deformylase                | D90906 | <i>Synechocystis sp.</i>     |  | 316   | 40 |
| ORF5    | 3393  | 2491  | hypothetical protein                   | Z75208 | <i>Bacillus subtilis</i>     |  | 338   | 42 |
| ORF6    | 3639  | 4067  | unknown                                | U87792 | <i>Bacillus subtilis</i>     |  | 117   | 38 |
| ORF7    | 5649  | 4270  | putative                               |        |                              |  |       |    |
| ORF8    | 7463  | 6012  | putative                               |        |                              |  |       |    |
| ORF9    | 8051  | 8962  | putative                               |        |                              |  |       |    |
| ORF10   | 9129  | 9959  | putative                               |        |                              |  |       |    |
| ORF11   | 10687 | 10361 | putative                               |        |                              |  |       |    |
| ORF12   | 10927 | 11232 | putative                               |        |                              |  |       |    |
| ORF13   | 11246 | 12727 | amidase                                | U49269 | <i>Moraxella catarrhalis</i> |  | 1108  | 42 |
| ORF14   | 12691 | 14190 | PET112                                 | D90913 | <i>Synechocystis sp.</i>     |  | 1044  | 46 |
| ORF15   | 14484 | 17249 | POMP91A                                | U65942 | <i>Chlamydia psittaci</i>    |  | 1074  | 43 |
| ORF16   | 16039 | 15770 | putative                               |        |                              |  |       |    |
| ORF17   | 17845 | 20853 | putative                               |        |                              |  |       |    |
| ORF18   | 21137 | 22042 | putative                               |        |                              |  |       |    |
| ORF19   | 22046 | 23476 | putative                               |        |                              |  |       |    |
| ORF20   | 23681 | 26110 | putative                               |        |                              |  |       |    |
| ORF21   | 26109 | 25861 | putative                               |        |                              |  |       |    |
| ORF22   | 26241 | 26978 | putative                               |        |                              |  |       |    |
| ORF23   | 26960 | 27754 | putative                               |        |                              |  |       |    |
| ORF24   | 27747 | 28577 | putative                               |        |                              |  |       |    |
| ORF25   | 28887 | 29492 | POMP91A                                | U65942 | <i>Chlamydia psittaci</i>    |  | 180   | 39 |
| ORF26   | 29432 | 30028 | POMP91A                                | U65942 | <i>Chlamydia psittaci</i>    |  | 361   | 51 |
| ORF27   | 30024 | 31472 | POMP91A                                | U65942 | <i>Chlamydia psittaci</i>    |  | 879   | 54 |
| ORF28   | 31758 | 32288 | putative 98 kDa outer membrane protein | U72499 | <i>Chlamydia psittaci</i>    |  | 144   | 43 |
| ORF29   | 32201 | 33991 | putative 98 kDa outer membrane protein | U72499 | <i>Chlamydia psittaci</i>    |  | 1126  | 48 |
| ORF30   | 33852 | 34541 | putative 98 kDa outer membrane protein | U72499 | <i>Chlamydia psittaci</i>    |  | 589   | 62 |
| ORF31   | 34783 | 36063 | POMP91B precursor                      | U65943 | <i>Chlamydia psittaci</i>    |  | 469   | 46 |
| ORF32   | 36009 | 37529 | putative 98 kDa outer membrane protein | U72499 | <i>Chlamydia psittaci</i>    |  | 1338  | 51 |
| ORF33   | 37881 | 39362 | putative 98 kDa outer membrane protein | U72499 | <i>Chlamydia psittaci</i>    |  | 671   | 40 |

| ORF   | Begin | End   | Homology   | ID       | Species                          | Score | I% |
|-------|-------|-------|--|----------|----------------------------------|-------|----|
| ORF34 | 39418 | 39161 | putative   |          |                                  |       |    |
| ORF35 | 39366 | 40715 | POMP90A precursor  | U65942   | <i>Chlamydia psittaci</i>        | 904   | 47 |
| ORF36 | 43076 | 41094 | putative   |          |                                  |       |    |
| ORF37 | 43800 | 43066 | putative   |          |                                  |       |    |
| ORF38 | 44828 | 43785 | putative   |          |                                  |       |    |
| ORF39 | 45340 | 44753 | homologous to unidentified E. coli protein   | M96343   | <i>Bacillus subtilis</i>         | 136   | 44 |
| ORF40 | 45752 | 45372 | o530; This 530 aa orf is 33 pct identical (14 gaps) to 525 residues of an approx. 640 aa protein YHES HAEIN SW: P44808 | AE000184 | <i>Escherichia coli</i>          | 269   | 43 |
| ORF41 | 46996 | 45701 | ABC transporter, ATP-binding protein (yheS)  | AE000596 | <i>Helicobacter pylori</i>       | 878   | 39 |
| ORF42 | 47961 | 47569 | putative   |          |                                  |       |    |
| ORF43 | 48960 | 48040 | hypothetical protein   | D64001   | <i>Synechocystis</i> sp.         | 404   | 37 |
| ORF44 | 51452 | 50133 | Lon protease-like protein  | X74215   | <i>Homo sapiens</i>              | 1232  | 54 |
| ORF45 | 52606 | 51335 | unknown  | Z54285   | <i>Schizosaccharomyces pombe</i> | 781   | 47 |
| ORF46 | 53684 | 53319 | putative   |          |                                  |       |    |
| ORF47 | 54195 | 53746 | putative   |          |                                  |       |    |
| ORF48 | 55278 | 56453 | heat-shock protein   | U15010   | <i>Legionella pneumophila</i>    | 975   | 45 |
| ORF49 | 56493 | 57266 | branched chain alpha-keto acid dehydrogenase E1-alpha  | M97391   | <i>Bacillus subtilis</i>         | 329   | 36 |
| ORF50 | 57297 | 58526 | branched chain alpha-keto acid dehydrogenase E1-beta   | M97391   | <i>Bacillus subtilis</i>         | 707   | 50 |
| ORF51 | 59851 | 58565 | putative   |          |                                  |       |    |
| ORF52 | 61495 | 59924 | ComE   | D90903   | <i>Synechocystis</i> sp.         | 134   | 55 |
| ORF53 | 61324 | 62151 | putative   |          |                                  |       |    |
| ORF54 | 62132 | 62470 | Hpr protein  | X12832   | <i>Bacillus subtilis</i>         | 136   | 36 |
| ORF55 | 62474 | 63733 | enzyme I (ptsI)  | U32844   | <i>Haemophilus influenzae</i>    | 381   | 35 |
| ORF56 | 63881 | 64186 | f831; This 831 aa orf is 46 pct identical (11 gaps) to 709 residues of an approx. 712 aa protein PT1A ECOLI SW: P32670 | AE000326 | <i>Escherichia coli</i>          | 123   | 34 |
| ORF57 | 64611 | 64318 | ORF107   | X17014   | <i>Bacillus subtilis</i>         | 128   | 33 |
| ORF58 | 65485 | 64673 | putative   |          |                                  |       |    |
| ORF59 | 65999 | 65301 | dnaZX-like ORF put. DNA polymerase III   | X06803   | <i>Bacillus subtilis</i>         | 596   | 52 |

| ORF   | Begin  | End    | Homology   | ID       | Species                       | Score | I% |
|-------|--------|--------|--|----------|-------------------------------|-------|----|
| ORF60 | 66244  | 67281  | putative   |          |                               |       |    |
| ORF61 | 67265  | 67699  | putative   |          |                               |       |    |
| ORF62 | 67703  | 68539  | putative   |          |                               |       |    |
| ORF63 | 68805  | 70736  | putative   |          |                               |       |    |
| ORF64 | 69172  | 68831  | putative   |          |                               |       |    |
| ORF65 | 70642  | 71142  | putative   |          |                               |       |    |
| ORF66 | 71325  | 72029  | putative   |          |                               |       |    |
| ORF67 | 72060  | 73637  | putative   | D84432   | <i>Bacillus subtilis</i>      | 542   | 44 |
| ORF68 | 74061  | 76175  | YqJf   | D28503   | <i>Clostridium josui</i>      | 262   | 42 |
| ORF69 | 78351  | 77680  | porphobilinogen deaminase                              | D90914   | <i>Synechocystis sp.</i>      | 736   | 52 |
| ORF70 | 79356  | 78355  | sms protein  | AE000579 | <i>Helicobacter pylori</i>    | 98    | 33 |
| ORF71 | 79983  | 79693  | ribonuclease III (mc)                                  | D64116   | <i>Bacillus subtilis</i>      | 268   | 44 |
| ORF72 | 80441  | 79938  | ORF3   |          |                               |       |    |
| ORF73 | 80475  | 80969  | putative   | Y14079   | <i>Bacillus subtilis</i>      | 893   | 38 |
| ORF74 | 81296  | 83080  | hypothetical protein                                   | X77021   | <i>Caenorhabditis elegans</i> | 622   | 58 |
| ORF75 | 83291  | 83932  | manganese superoxide dismutase                         | AE000604 | <i>Helicobacter pylori</i>    | 602   | 50 |
| ORF76 | 84005  | 84769  | acetyl-CoA carboxylase beta subunit (accD)             |          |                               |       |    |
| ORF77 | 84975  | 85244  | deoxyuridinetriphosphatase (dut)                       | U32776   | <i>Haemophilus influenzae</i> | 110   | 41 |
| ORF78 | 85123  | 85425  | deoxyuridine 5'-triphosphate nucleotidohydrolase (dut) | AE000596 | <i>Helicobacter pylori</i>    | 265   | 68 |
| ORF79 | 85397  | 85903  | ORF2   | L26916   | <i>Pseudomonas aeruginosa</i> | 173   | 34 |
| ORF80 | 85909  | 86583  | enzyme IIANtr  | U18997   | <i>Escherichia coli</i>       | 170   | 42 |
| ORF81 | 86626  | 88065  | putative   |          |                               |       |    |
| ORF82 | 89257  | 91026  | putative   |          |                               |       |    |
| ORF83 | 91291  | 93030  | putative   |          |                               |       |    |
| ORF84 | 93295  | 94086  | putative   |          |                               |       |    |
| ORF85 | 95285  | 94707  | putative   |          |                               |       |    |
| ORF86 | 95667  | 96557  | putative   |          |                               |       |    |
| ORF87 | 96317  | 97456  | putative   |          |                               |       |    |
| ORF88 | 98435  | 97968  | putative   |          |                               |       |    |
| ORF89 | 99460  | 98426  | putative   |          |                               |       |    |
| ORF90 | 100144 | 101325 | elongation factor Tu                                   | L22216   | <i>Chlamydia trachomatis</i>  | 1917  | 95 |



| ORF    | Begin  | End    | Homology                                  | ID       | Species                               | Score | I% |
|--------|--------|--------|---|----------|---------------------------------------|-------|----|
| ORF91  | 101457 | 101720 | putative                                  |          |                                       |       |    |
| ORF92  | 101704 | 102273 | transcription factor                      | L10348   | <i>Thermus aquaticus thermophilus</i> | 376   | 49 |
| ORF93  | 102356 | 102805 | ribosomal protein L11                     | D13303   | <i>Bacillus subtilis</i>              | 458   | 63 |
| ORF94  | 102835 | 103530 | ribosomal protein L1                      | Z11839   | <i>Thermotoga maritima</i>            | 642   | 51 |
| ORF95  | 103549 | 104058 | ribosomal protein L10                     | M89911   | <i>Streptomyces antibioticus</i>      | 82    | 31 |
| ORF96  | 104096 | 104491 | rpl12 (AA 1-128)                          | X53178   | <i>Synechocystis PCC6803</i>          | 325   | 47 |
| ORF97  | 104601 | 108386 | DNA-directed RNA polymerase beta chain    | X64172   | <i>Staphylococcus aureus</i>          | 2740  | 52 |
| ORF98  | 108401 | 112054 | rpoC                                      | V00339   | <i>Escherichia coli</i>               | 2947  | 54 |
| ORF99  | 112033 | 112590 | acetylornithine deacetylase (EC 5.1.1.16) | M22622   | <i>Leptospira biflexa</i>             | 514   | 62 |
| ORF100 | 112672 | 113682 | transaldolase                             | L19437   | <i>Homo sapiens</i>                   | 755   | 49 |
| ORF101 | 113726 | 114121 | putative                                  |          |                                       |       |    |
| ORF102 | 114711 | 114136 | putative                                  |          |                                       |       |    |
| ORF103 | 115267 | 115755 | putative                                  |          |                                       |       |    |
| ORF104 | 115911 | 116543 | putative                                  |          |                                       |       |    |
| ORF105 | 116736 | 118055 | ATPase alpha-subunit                      | X63855   | <i>Thermus aquaticus thermophilus</i> | 934   | 50 |
| ORF106 | 117968 | 118522 | adenosine triphosphatase A subunit        | D50528   | <i>Acetabularia acetabulum</i>        | 147   | 32 |
| ORF107 | 118530 | 119843 | V-ATPase B subunit                        | U96487   | <i>Desulfurococcus sp. SY</i>         | 751   | 48 |
| ORF108 | 119816 | 120457 | putative                                  |          |                                       |       |    |
| ORF109 | 120451 | 122430 | v-type Na-ATPase                          | X76913   | <i>Enterococcus hirae</i>             | 264   | 35 |
| ORF110 | 122504 | 122950 | ATP synthase, subunit K                   | U67478   | <i>Methanococcus jannaschii</i>       | 184   | 31 |
| ORF111 | 123528 | 126347 | valyl-tRNA synthetase                     | X05891   | <i>Escherichia coli</i>               | 1679  | 49 |
| ORF112 | 126332 | 129166 | protein kinase-like protein               | U19250   | <i>Streptomyces coelicolor</i>        | 427   | 37 |
| ORF113 | 134690 | 129213 | UvrA                                      | D49911   | <i>Thermus thermophilus</i>           | 3107  | 41 |
| ORF114 | 134925 | 136382 | pyruvate kinase                           | U83196   | <i>Chlamydia trachomatis</i>          | 1748  | 71 |
| ORF115 | 137870 | 136482 | HtrB protein                              | X61000   | <i>Escherichia coli</i>               | 147   | 38 |
| ORF116 | 137899 | 138240 | putative                                  |          |                                       |       |    |
| ORF117 | 138239 | 137928 | putative                                  |          |                                       |       |    |
| ORF118 | 139558 | 138257 | putative                                  |          |                                       |       |    |
| ORF119 | 140352 | 139516 | YbbP                                      | AB002150 | <i>Bacillus subtilis</i>              | 231   | 46 |
| ORF120 | 140498 | 141841 | cyanide insensitive terminal oxidase      | Y10528   | <i>Pseudomonas aeruginosa</i>         | 538   | 50 |
| ORF121 | 141855 | 142658 | cyanide insensitive terminal oxidase      | Y10528   | <i>Pseudomonas aeruginosa</i>         | 310   | 40 |
| ORF122 | 144258 | 143050 | putative                                  |          |                                       |       |    |
| ORF123 | 145258 | 144494 | putative                                  |          |                                       |       |    |

| ORF    | Begin  | End    | Homology   | ID       | Species                          | Score | I% |
|--------|--------|--------|--|----------|----------------------------------|-------|----|
| ORF124 | 145454 | 146749 | product similar to E. coli PhoH protein  | Z97025   | <i>Bacillus subtilis</i>         | 836   | 47 |
| ORF125 | 147318 | 146767 | putative   |          |                                  |       |    |
| ORF126 | 148261 | 147677 | putative   |          |                                  |       |    |
| ORF127 | 149029 | 152157 | isoleucyl-tRNA synthetase  | U04953   | <i>Homo sapiens</i>              | 2361  | 52 |
| ORF128 | 154108 | 152201 | leader peptidase I   | D90904   | <i>Synechocystis sp.</i>         | 225   | 47 |
| ORF129 | 155135 | 154308 | putative   | AF008220 | <i>Bacillus subtilis</i>         | 201   | 43 |
| ORF130 | 155141 | 155467 | YtiA   | X78969   | <i>Coxiella burnetii</i>         | 863   | 59 |
| ORF131 | 155703 | 156779 | orf 361; ranslated orf similarity to SW:<br>RF1_SALTY peptide chain release factor 1<br>of <i>Salmonella typhimurium</i> |          |                                  |       |    |
| ORF132 | 156748 | 157635 | product similar to E.coli PRFA2 protein  | Z49782   | <i>Bacillus subtilis</i>         | 144   | 37 |
| ORF133 | 157653 | 158996 | Ffh  | U82109   | <i>Thermus aquaticus</i>         | 797   | 45 |
| ORF134 | 159363 | 159986 | tRNA (guanine-N1)-methyltransferase<br>(trmD)  | U32705   | <i>Haemophilus influenzae</i>    | 545   | 49 |
| ORF135 | 159880 | 160446 | putative   |          |                                  |       |    |
| ORF136 | 160477 | 160839 | ribosomal protein L19  | X72627   | <i>Synechocystis sp.</i>         | 319   | 50 |
| ORF137 | 160898 | 161539 | putative protein highly homologous to E.<br>coli RNase HII   | D32253   | <i>Magnetospirillum sp.</i>      | 427   | 49 |
| ORF138 | 161527 | 162153 | 5'guanylate kinase (gmk)   | U32848   | <i>Haemophilus influenzae</i>    | 385   | 43 |
| ORF139 | 162144 | 162443 | putative   |          |                                  |       |    |
| ORF140 | 162437 | 164098 | methionyl-tRNA synthetase  | AB004537 | <i>Schizosaccharomyces pombe</i> | 861   | 54 |
| ORF141 | 165451 | 164228 | exodeoxyribonuclease V (recD)  | U32811   | <i>Haemophilus influenzae</i>    | 432   | 32 |
| ORF142 | 166349 | 165411 | putative   |          |                                  |       |    |
| ORF143 | 166949 | 168442 | putative   |          |                                  |       |    |
| ORF144 | 169416 | 171029 | putative   |          |                                  |       |    |
| ORF145 | 170857 | 171459 | putative   |          |                                  |       |    |
| ORF146 | 172652 | 173428 | putative biotin-protein ligase   | Z97992   | <i>Schizosaccharomyces pombe</i> | 292   | 44 |
| ORF147 | 174626 | 173439 | putative   |          |                                  |       |    |
| ORF148 | 174816 | 175613 | putative   |          |                                  |       |    |
| ORF149 | 175598 | 175954 | putative   |          |                                  |       |    |
| ORF150 | 175958 | 176935 | putative   |          |                                  |       |    |

| ORF    | Begin  | End    | Homology  | ID       | Species                             | Score | I%  |
|--------|--------|--------|---|----------|-------------------------------------|-------|-----|
| ORF151 | 177708 | 176938 | orf 3' of chaperonin homolog hypB<br>[Chlamydia psittaci, pigeon strain P-1041,<br>Peptide Partial, 98 aa]                  | S40172   | <i>Chlamydia psittaci</i>           | 376   | 74  |
| ORF152 | 177128 | 177376 | putative  |          |                                     |       |     |
| ORF153 | 179472 | 177841 | putative  | M69217   | <i>Chlamydia pneumoniae</i>         | 2678  | 100 |
| ORF154 | 179822 | 179517 | putative  | M69217   | <i>Chlamydia pneumoniae</i>         | 498   | 99  |
| ORF155 | 181793 | 179943 | Pz-peptidase  | D88209   | <i>Bacillus licheniformis</i>       | 1088  | 38  |
| ORF156 | 182628 | 181876 | o247; This 247 aa orf is 51 pct identical (0<br>gaps) to 117 residues of an approx. 160 aa<br>protein YPH7_CHRVI SW: P45371 | AE000174 | <i>Escherichia coli</i>             | 401   | 42  |
| ORF157 | 184420 | 183074 | glutamate-1-semialdehyde 2,1-<br>aminomutase  | X53696   | <i>Escherichia coli</i>             | 823   | 41  |
| ORF158 | 184988 | 184467 | ORF o211  | U28377   | <i>Escherichia coli</i>             | 87    | 54  |
| ORF159 | 185483 | 185112 | hypothetical protein  | D90906   | <i>Synechocystis sp.</i>            | 91    | 33  |
| ORF160 | 185902 | 185483 | ribose 5-phosphate isomerase  | U28377   | <i>Escherichia coli</i>             | 111   | 41  |
| ORF161 | 186174 | 185839 | ribose 5-phosphate isomerase A<br>(SP-P27252)   | U32729   | <i>Haemophilus influenzae</i>       | 190   | 46  |
| ORF162 | 187720 | 186587 | hypothetical  | D83026   | <i>Bacillus subtilis</i>            | 536   | 42  |
| ORF163 | 188318 | 190933 | ATP-dependent protease binding subunit  | M29364   | <i>Escherichia coli</i>             | 2010  | 53  |
| ORF164 | 191090 | 191635 | putative  |          |                                     |       |     |
| ORF165 | 191547 | 192743 | putative  |          |                                     |       |     |
| ORF166 | 192969 | 193469 | putative  |          |                                     |       |     |
| ORF167 | 194044 | 193610 | putative  |          |                                     |       |     |
| ORF168 | 194196 | 195809 | unknown   |          |                                     |       |     |
| ORF169 | 196088 | 198073 | DNA ligase (EC 6.5.1.2)   | Z84395   | <i>Mycobacterium tuberculosis</i>   | 242   | 52  |
| ORF170 | 198132 | 199454 | putative  | M24278   | <i>Escherichia coli</i>             | 1317  | 46  |
| ORF171 | 199351 | 202818 | putative  |          |                                     |       |     |
| ORF172 | 204552 | 202999 | PcpB  | U60175   | <i>Sphingomonas chlorophenolica</i> | 80    | 41  |
| ORF173 | 205648 | 204692 | putative  |          |                                     |       |     |
| ORF174 | 205807 | 207327 | leucine tRNA synthetase   | AF008220 | <i>Bacillus subtilis</i>            | 1595  | 57  |
| ORF175 | 207182 | 207775 | leucyl-tRNA synthetase  | X06331   | <i>Escherichia coli</i>             | 363   | 51  |
| ORF176 | 207779 | 208267 | transfer RNA-Leu synthetase   | M88581   | <i>Bacillus subtilis</i>            | 285   | 43  |
| ORF177 | 208267 | 209577 | KDO transferase   | Z31593   | <i>Chlamydia pneumoniae</i>         | 2262  | 100 |

| ORF    | Begin  | End    | Homology   | ID     | Species                            | Score | I% |
|--------|--------|--------|--|--------|------------------------------------|-------|----|
| ORF178 | 211807 | 211271 | KDO-transferase  | X80061 | <i>Chlamydia psittaci</i>          | 105   | 38 |
| ORF179 | 212188 | 211844 | putative   |        |                                    |       |    |
| ORF180 | 214079 | 212448 | pyrophosphate-dependent phosphofructokinase beta subunit | Z32850 | <i>Ricinus communis</i>            | 1003  | 45 |
| ORF181 | 214907 | 214083 | CinI   | U44893 | <i>Butyrivibrio fibrisolvens</i>   | 111   | 41 |
| ORF182 | 216154 | 215429 | putative   |        |                                    |       |    |
| ORF183 | 216115 | 216678 | putative   |        |                                    |       |    |
| ORF184 | 216728 | 217282 | putative   |        |                                    |       |    |
| ORF185 | 217267 | 217866 | putative   |        |                                    |       |    |
| ORF186 | 218593 | 218261 | putative   |        |                                    |       |    |
| ORF187 | 219821 | 218994 | putative   |        |                                    |       |    |
| ORF188 | 221382 | 220309 | putative   |        |                                    |       |    |
| ORF189 | 222719 | 221433 | GMP synthetase   | M10101 | <i>Escherichia coli</i>            | 1151  | 48 |
| ORF190 | 223521 | 222724 | IMP dehydrogenase  | X66859 | <i>Acinetobacter calcoaceticus</i> | 778   | 58 |
| ORF191 | 224499 | 225008 | putative   |        |                                    |       |    |
| ORF192 | 225140 | 225559 | putative   |        |                                    |       |    |
| ORF193 | 225555 | 226802 | putative   |        |                                    |       |    |
| ORF194 | 227800 | 226892 | putative   |        |                                    |       |    |
| ORF195 | 228335 | 228072 | putative   |        |                                    |       |    |
| ORF196 | 229251 | 228643 | putative   |        |                                    |       |    |
| ORF197 | 230983 | 229622 | YqhX   | D84432 | <i>Bacillus subtilis</i>           | 1386  | 56 |
| ORF198 | 231483 | 230983 | acetyl-CoA carboxylase biotin carboxyl carrier protein   | U38804 | <i>Porphyra purpurea</i>           | 199   | 52 |
| ORF199 | 232063 | 231509 | elongation factor P                                      | D64001 | <i>Synechocystis sp.</i>           | 282   | 32 |
| ORF200 | 232739 | 232053 | pentose-5-phosphate-3-epimerase                          | D90911 | <i>Synechocystis sp.</i>           | 463   | 43 |
| ORF201 | 233166 | 234356 | putative   |        |                                    |       |    |
| ORF202 | 233518 | 233165 | putative   |        |                                    |       |    |
| ORF203 | 234536 | 235186 | ORF2   | L35036 | <i>Chlamydia psittaci</i>          | 570   | 60 |
| ORF204 | 235379 | 236689 | putative   |        |                                    |       |    |
| ORF205 | 236680 | 237618 | putative   |        |                                    |       |    |
| ORF206 | 237521 | 238345 | putative   |        |                                    |       |    |
| ORF207 | 238281 | 238973 | putative   |        |                                    |       |    |
| ORF208 | 238871 | 240115 | putative   |        |                                    |       |    |

| ORF    | Begin  | End    | Homology  | ID       | Species                        | Score | I% |
|--------|--------|--------|---|----------|--------------------------------|-------|----|
| ORF209 | 240191 | 241564 | putative  |          |                                |       |    |
| ORF210 | 242281 | 241604 | YqiZ  | D84432   | <i>Bacillus subtilis</i>       | 379   | 39 |
| ORF211 | 242933 | 242274 | f222; This 222 aa orf is 48 pct identical (0 gaps) to 208 residues of an approx. 232 aa protein YCKA BACSU SW: P42399 | AE000284 | <i>Escherichia coli</i>        | 382   | 45 |
| ORF212 | 243416 | 242976 | arginine repressor protein (argR)   | U32800   | <i>Haemophilus influenzae</i>  | 229   | 46 |
| ORF213 | 243500 | 244531 | sialoglycoprotease  | U15958   | <i>Pasteurella haemolytica</i> | 565   | 53 |
| ORF214 | 244480 | 246021 | oligopeptide permease homolog AII   | AF000366 | <i>Borrelia burgdorferi</i>    | 457   | 34 |
| ORF215 | 246330 | 247811 | OppAIV  | AF000948 | <i>Borrelia burgdorferi</i>    | 453   | 35 |
| ORF216 | 247831 | 249174 | OppA gene product   | X56347   | <i>Bacillus subtilis</i>       | 255   | 37 |
| ORF217 | 249437 | 251038 | deiAE   | X56678   | <i>Bacillus subtilis</i>       | 469   | 37 |
| ORF218 | 251325 | 252212 | OppB gene product   | X56347   | <i>Bacillus subtilis</i>       | 652   | 42 |
| ORF219 | 253156 | 254007 | oligopeptidase  | X89237   | <i>Streptococcus pyogenes</i>  | 574   | 48 |
| ORF220 | 253974 | 254852 | ATP binding protein   | L18760   | <i>Lactococcus lactis</i>      | 433   | 40 |
| ORF221 | 255258 | 256094 | KDO-transferase   | X80061   | <i>Chlamydia psittaci</i>      | 106   | 46 |
| ORF222 | 256640 | 257455 | putative  |          |                                |       |    |
| ORF223 | 257502 | 258239 | 2-OXOGLUTARAT   | A47930   | <i>Spinacia oleracea</i>       | 636   | 52 |
| ORF224 | 257869 | 257501 | putative  |          |                                |       |    |
| ORF225 | 259248 | 260897 | pyrophosphate-fructose 6-phosphate 1-phosphotransferase beta-subunit  | M55191   | <i>Solanum tuberosum</i>       | 1055  | 44 |
| ORF226 | 262753 | 261788 | putative  |          |                                |       |    |
| ORF227 | 263059 | 262757 | putative  |          |                                |       |    |
| ORF228 | 264375 | 263182 | putative  |          |                                |       |    |
| ORF229 | 265985 | 264747 | putative  |          |                                |       |    |
| ORF230 | 266637 | 266059 | putative  |          |                                |       |    |
| ORF231 | 267338 | 266538 | putative  |          |                                |       |    |
| ORF232 | 267922 | 267473 | putative  |          |                                |       |    |
| ORF233 | 269647 | 270771 | tRNA guanine transglycosylase   | L33777   | <i>Zymomonas mobilis</i>       | 628   | 44 |
| ORF234 | 272777 | 273145 | ORF 4   | D00624   | <i>Bacteriophage chp1</i>      | 100   | 41 |
| ORF235 | 273253 | 273636 | putative  |          |                                |       |    |
| ORF236 | 273705 | 273977 | putative  |          |                                |       |    |
| ORF237 | 276016 | 275717 | putative  |          |                                |       |    |
| ORF238 | 276439 | 276020 | putative  |          |                                |       |    |

| ORF    | Begin  | End    | Homology   | ID       | Species                                     | Score | I% |
|--------|--------|--------|--|----------|---|-------|----|
| ORF239 | 276792 | 277253 | putative   |          |   |       |    |
| ORF240 | 277318 | 277599 | putative   |          |   |       |    |
| ORF241 | 278578 | 277877 | putative   | U33937   | <i>Neisseria gonorrhoeae</i>                | 312   | 39 |
| ORF242 | 279258 | 278554 | FbpC   |          |   |       |    |
| ORF243 | 280435 | 279533 | putative   |          |   |       |    |
| ORF244 | 281547 | 280849 | putative   |          |   |       |    |
| ORF245 | 281696 | 282325 | CMP-2-keto-3-deoxyoctulosonic acid synthetase    | U15192   | <i>Chlamydia trachomatis</i>                | 637   | 63 |
| ORF246 | 282459 | 284069 | CTP synthetase                                   | U15192   | <i>Chlamydia trachomatis</i>                | 2000  | 68 |
| ORF247 | 284056 | 284517 | ORF3   | U15192   | <i>Chlamydia trachomatis</i>                | 453   | 65 |
| ORF248 | 284606 | 285775 | glucose 6-phosphate dehydrogenase                | U83195   | <i>Chlamydia trachomatis</i>                | 1263  | 77 |
| ORF249 | 285592 | 285987 | glucose 6-phosphate dehydrogenase                | U83195   | <i>Chlamydia trachomatis</i>                | 519   | 79 |
| ORF250 | 286179 | 286976 | glucose-6-phosphate dehydrogenase isozyme        | D88189   | <i>Actinobacillus actinomycetemcomitans</i> | 216   | 40 |
| ORF251 | 287583 | 287002 | putative   |          |   |       |    |
| ORF252 | 287951 | 287451 | putative   |          |   |       |    |
| ORF253 | 288499 | 288816 | putative   |          |   |       |    |
| ORF254 | 289674 | 288505 | putative   |          |   |       |    |
| ORF255 | 288839 | 289213 | putative   |          |   |       |    |
| ORF256 | 289970 | 290254 | putative   |          |   | 95    | 39 |
| ORF257 | 291931 | 292803 | gamma-D-glutamyl-L-diamino acid endopeptidase II | X64809   | <i>Bacillus sphaericus</i>                  |       |    |
| ORF258 | 293258 | 292755 | ScoS9  | U43429   | <i>Streptomyces coelicolor</i>              | 233   | 45 |
| ORF259 | 293718 | 293272 | ribosomal protein L13 (rpL13)                    | U32823   | <i>Haemophilus influenzae</i>               | 364   | 47 |
| ORF260 | 294630 | 293953 | glutamine transport ATP-binding protein Q        | U67524   | <i>Methanococcus jannaschii</i>             | 387   | 46 |
| ORF261 | 296153 | 294636 | putative   |          |   |       |    |
| ORF262 | 294817 | 295068 | putative   |          |   |       |    |
| ORF263 | 296354 | 297862 | conserved hypothetical protein                   | AE000586 | <i>Helicobacter pylori</i>                  | 641   | 46 |
| ORF264 | 298415 | 297879 | putative   |          |   |       |    |
| ORF265 | 298777 | 298253 | putative   |          |   |       |    |
| ORF266 | 299572 | 298781 | putative   |          |   |       |    |
| ORF267 | 300487 | 299633 | putative   |          |   |       |    |
| ORF268 | 301586 | 300702 | putative   |          |   |       |    |

| ORF    | Begin  | End    | Homology   | ID       | Species                           | Score | I% |
|--------|--------|--------|--|----------|-----------------------------------|-------|----|
| ORF269 | 302440 | 301571 | putative   |          |                                   |       |    |
| ORF270 | 302838 | 302437 | putative   |          |                                   |       |    |
| ORF271 | 303335 | 302745 | putative   |          |                                   |       |    |
| ORF272 | 304394 | 303852 | putative   |          |                                   |       |    |
| ORF273 | 304606 | 305223 | f311; This 311 aa orf is 22 pct identical (13 gaps) to 186 residues of an approx. 488 aa protein YACA_BACSU SW: P37563; pyu1 of D21139 | AE000232 | <i>Escherichia coli</i>           | 250   | 38 |
| ORF274 | 305394 | 306236 | survival protein surE  | U81296   | <i>Sinorhizobium meliloti</i>     | 156   | 42 |
| ORF275 | 306501 | 307439 | YqfU   | D84432   | <i>Bacillus subtilis</i>          | 547   | 42 |
| ORF276 | 308033 | 307458 | 3-octaprenyl-4-hydroxybenzoate carboxylase   | U61168   | <i>Bacillus firmus</i>            | 403   | 42 |
| ORF277 | 308924 | 308037 | 4-hydroxybenzoate octaprenyltransferase  | U61168   | <i>Bacillus firmus</i>            | 152   | 40 |
| ORF278 | 309485 | 310180 | putative   |          |                                   |       |    |
| ORF279 | 310426 | 311214 | putative   |          |                                   |       |    |
| ORF280 | 311597 | 311253 | putative   |          |                                   |       |    |
| ORF281 | 312772 | 311780 | putative   |          |                                   |       |    |
| ORF282 | 313425 | 312772 | putative   |          |                                   |       |    |
| ORF283 | 313646 | 313377 | putative   |          |                                   |       |    |
| ORF284 | 313937 | 314665 | lysophospholipase homolog  | AF006678 | <i>Schistosoma mansoni</i>        | 141   | 44 |
| ORF285 | 315576 | 314755 | dnaZX  | X17014   | <i>Bacillus subtilis</i>          | 154   | 39 |
| ORF286 | 316157 | 315531 | unknown  | D26185   | <i>Bacillus subtilis</i>          | 284   | 31 |
| ORF287 | 318657 | 316156 | DNA gyrase   | L47978   | <i>Aeromonas salmonicida</i>      | 1785  | 48 |
| ORF288 | 321042 | 318676 | DNA gyrase subunit B   | U35453   | <i>Clostridium acetobutylicum</i> | 1838  | 59 |
| ORF289 | 321445 | 321098 | putative   |          |                                   |       |    |
| ORF290 | 322309 | 321710 | putative   |          |                                   |       |    |
| ORF291 | 323190 | 322366 | outer membrane protein   | AE000654 | <i>Helicobacter pylori</i>        | 376   | 43 |
| ORF292 | 323843 | 323181 | hypothetical   | U70214   | <i>Escherichia coli</i>           | 356   | 37 |
| ORF293 | 324878 | 323856 | ATP-binding protein (abc)  | U32744   | <i>Haemophilus influenzae</i>     | 545   | 44 |
| ORF294 | 325340 | 326410 | f374; This 374 aa orf is 30 pct identical (9 gaps) to 102 residues of an approx. 512 aa protein FLIC SALMU SW: P06177                  | AE000299 | <i>Escherichia coli</i>           | 1194  | 62 |
| ORF295 | 326433 | 327836 | Xas A  | AE000246 | <i>Escherichia coli</i>           | 479   | 33 |

| ORF    | Begin  | End    | Homology  | ID       | Species                       | Score | I% |
|--------|--------|--------|---|----------|-------------------------------|-------|----|
| ORF296 | 328465 | 327839 | putative  |          |                               |       |    |
| ORF297 | 329360 | 328857 | putative  |          |                               |       |    |
| ORF298 | 330907 | 329357 | putative  |          |                               |       |    |
| ORF299 | 332455 | 330956 | MgtE  | U18744   | <i>Bacillus firmus</i>        | 203   | 36 |
| ORF300 | 334536 | 332395 | putative  |          |                               |       |    |
| ORF301 | 336091 | 334877 | putative  |          |                               |       |    |
| ORF302 | 336103 | 337302 | putative  |          |                               |       |    |
| ORF303 | 338129 | 338830 | putative  |          |                               |       |    |
| ORF304 | 338965 | 339501 | putative  |          |                               |       |    |
| ORF305 | 339508 | 340143 | putative  |          |                               |       |    |
| ORF306 | 340247 | 342967 | putative  |          |                               |       |    |
| ORF307 | 343385 | 343810 | cAMP-dependent protein kinase type I regulatory subunit | U75932   | <i>Rattus norvegicus</i>      | 102   | 37 |
| ORF308 | 344171 | 343935 | acyl carrier protein (acpP)                             | AE000570 | <i>Helicobacter pylori</i>    | 198   | 55 |
| ORF309 | 345082 | 344330 | 3-ketoacyl-ACP reductase                                | U39441   | <i>Vibrio harveyi</i>         | 598   | 48 |
| ORF310 | 346005 | 345082 | malonyl-CoA:Acyl carrier protein transacylase           | U59433   | <i>Bacillus subtilis</i>      | 538   | 45 |
| ORF311 | 346784 | 346437 | beta-ketoacyl-acyl carrier protein synthase III (fabH)  | AE000540 | <i>Helicobacter pylori</i>    | 273   | 50 |
| ORF312 | 347029 | 346715 | beta-ketoacyl-acyl carrier protein synthase III         | M77744   | <i>Escherichia coli</i>       | 265   | 63 |
| ORF313 | 347034 | 347723 | recombination protein                                   | D90916   | <i>Synechocystis sp.</i>      | 363   | 42 |
| ORF314 | 348075 | 350459 | putative  |          |                               |       |    |
| ORF315 | 350598 | 351071 | putative  |          |                               |       |    |
| ORF316 | 351075 | 352175 | rifampicin resistance protein                           | L22690   | <i>Rickettsia rickettsii</i>  | 495   | 46 |
| ORF317 | 353291 | 352230 | putative  |          |                               |       |    |
| ORF318 | 353442 | 354467 | pyruvate dehydrogenase E1 component, alpha subunit      | D90915   | <i>Synechocystis sp.</i>      | 571   | 44 |
| ORF319 | 354451 | 354933 | pyruvate dehydrogenase E1 beta subunit                  | U09137   | <i>Arabidopsis thaliana</i>   | 495   | 59 |
| ORF320 | 355000 | 355449 | pyruvate dehydrogenase E1 component, beta subunit       | U38804   | <i>Porphyra purpurea</i>      | 336   | 47 |
| ORF321 | 355448 | 356743 | F23B12.5  | Z77659   | <i>Caenorhabditis elegans</i> | 759   | 46 |
| ORF322 | 355953 | 355642 | putative  |          |                               |       |    |



| ORF    | Begin  | End    | Homology  | ID       | Species                        | Score | I% |
|--------|--------|--------|---|----------|--------------------------------|-------|----|
| ORF323 | 359310 | 356827 | glycogen phosphorylase B                                    | U47025   | <i>Homo sapiens</i>            | 2193  | 57 |
| ORF324 | 359120 | 359377 | putative  |          |                                |       |    |
| ORF325 | 359525 | 359908 | putative  |          |                                |       |    |
| ORF326 | 361290 | 359947 | DnaA  | D89066   | <i>Staphylococcus aureus</i>   | 375   | 46 |
| ORF327 | 363785 | 361362 | hypothetical  | U32781   | <i>Haemophilus influenzae</i>  | 394   | 44 |
| ORF328 | 364496 | 363888 | putative  |          |                                |       |    |
| ORF329 | 364832 | 365290 | putative  |          |                                |       |    |
| ORF330 | 365304 | 365669 | dpi   | M76470   | <i>Escherichia coli</i>        | 160   | 45 |
| ORF331 | 366599 | 365667 | NADPH thioredoxin reductase                                 | AC002329 | <i>Arabidopsis thaliana</i>    | 975   | 60 |
| ORF332 | 367291 | 369030 | ribosomal protein S1 (rpS1)                                 | U32801   | <i>Haemophilus influenzae</i>  | 1209  | 41 |
| ORF333 | 369134 | 369808 | NusA  | U74759   | <i>Chlamydia trachomatis</i>   | 995   | 87 |
| ORF334 | 369917 | 370438 | NusA  | U74759   | <i>Chlamydia trachomatis</i>   | 760   | 87 |
| ORF335 | 370365 | 372647 |   | U74759   | <i>Chlamydia trachomatis</i>   | 2173  | 61 |
| ORF336 | 372557 | 373066 | initiation factor IF2-beta (infB; gtg start codon)          | X00513   | <i>Escherichia coli</i>        | 333   | 39 |
| ORF337 | 373020 | 373442 | ORF6 gene product   | Z18631   | <i>Bacillus subtilis</i>       | 192   | 34 |
| ORF338 | 373467 | 374195 | tRNA pseudouridine 55 synthase                              | D90917   | <i>Synechocystis sp.</i>       | 358   | 47 |
| ORF339 | 374176 | 375099 | hypothetical 34.6 kD protein in rpsT-ileS intergenic region | AE000113 | <i>Escherichia coli</i>        | 395   | 39 |
| ORF340 | 375676 | 375083 | hypothetical GTP-binding protein in pth 3' region           | AE000219 | <i>Escherichia coli</i>        | 507   | 53 |
| ORF341 | 376173 | 375634 | hypothetical  | U32723   | <i>Haemophilus influenzae</i>  | 480   | 59 |
| ORF342 | 376564 | 377643 | YscU  | U08019   | <i>Yersinia enterocolitica</i> | 538   | 37 |
| ORF343 | 377956 | 379773 | lcrD gene product   | X67771   | <i>Yersinia enterocolitica</i> | 1302  | 47 |
| ORF344 | 379781 | 380425 | putative  |          |                                |       |    |
| ORF345 | 380281 | 381000 | putative  |          |                                |       |    |
| ORF346 | 381008 | 381460 | putative  |          |                                |       |    |
| ORF347 | 381460 | 383037 | 4-alpha-glucanotransferase                                  | L37874   | <i>Clostridium butyricum</i>   | 302   | 38 |
| ORF348 | 383257 | 383523 | ribosomal protein L28 (rplL28)                              | U32776   | <i>Haemophilus influenzae</i>  | 175   | 55 |
| ORF349 | 383553 | 385304 | hypothetical protein  | D90901   | <i>Synechocystis sp.</i>       | 565   | 38 |
| ORF350 | 385397 | 386458 | comE ORF1   | D64002   | <i>Synechocystis sp.</i>       | 187   | 10 |
| ORF351 | 387242 | 386514 | putative  |          |                                |       |    |
| ORF352 | 388764 | 387013 | putative  |          |                                |       |    |

| ORF    | Begin  | End    | Homology   | ID       | Species                             | Score | I% |
|--------|--------|--------|--|----------|-------------------------------------|-------|----|
| ORF353 | 390120 | 390932 | methylenetetrahydrofolate dehydrogenase  | D64000   | <i>Synechocystis</i> sp.            | 588   | 53 |
| ORF354 | 390919 | 391818 | f351; Residues 1-121 are 100 pct identical to YOJL_ECOLI SW: P33944 (122 aa) and aa 152-351 are 100 pct identical to YOJK_ECOLI SW: P33943 | AE000310 | <i>Escherichia coli</i>             | 186   | 39 |
| ORF355 | 392379 | 391885 | small protein  | D90914   | <i>Synechocystis</i> sp.            | 387   | 46 |
| ORF356 | 392582 | 392986 | putative   |          |                                     |       |    |
| ORF357 | 392776 | 393684 | putative   |          |                                     |       |    |
| ORF358 | 394151 | 394804 | RecF protein   | D90907   | <i>Synechocystis</i> sp.            | 232   | 34 |
| ORF359 | 394928 | 395308 | putative   |          |                                     |       |    |
| ORF360 | 395259 | 395990 | putative   |          |                                     |       |    |
| ORF361 | 397815 | 395953 | hypothetical   | U32773   | <i>Haemophilus influenzae</i>       | 391   | 36 |
| ORF362 | 398850 | 397831 | H. influenzae predicted coding region HI0807   | U32763   | <i>Haemophilus influenzae</i>       | 580   | 39 |
| ORF363 | 400085 | 399099 | putative   |          |                                     |       |    |
| ORF364 | 401245 | 400073 | YtgC   | AF008220 | <i>Bacillus subtilis</i>            | 244   | 30 |
| ORF365 | 401474 | 401136 | putative   |          |                                     |       |    |
| ORF366 | 402199 | 401423 | unknown  | U52850   | <i>Erysipelothrix rhusiopathiae</i> | 534   | 46 |
| ORF367 | 403193 | 402186 | putative   |          |                                     |       |    |
| ORF368 | 403650 | 404165 | putative   |          |                                     |       |    |
| ORF369 | 404343 | 405914 | adenine nucleotide translocase   | Z49227   | <i>Arabidopsis thaliana</i>         | 1280  | 55 |
| ORF370 | 405984 | 407327 | putative   |          |                                     |       |    |
| ORF371 | 407712 | 408806 | putative   |          |                                     |       |    |
| ORF372 | 410439 | 409075 | putative   |          |                                     |       |    |
| ORF373 | 411826 | 410954 | putative   |          |                                     |       |    |
| ORF374 | 412482 | 414302 | lepA gene product  | X91655   | <i>Bacillus subtilis</i>            | 1827  | 59 |
| ORF375 | 415402 | 414407 | 6-phosphogluconate dehydrogenase, decarboxylating (gnd)  | U32737   | <i>Haemophilus influenzae</i>       | 687   | 51 |
| ORF376 | 415848 | 415237 | 6-phosphogluconate dehydrogenase, 6PGD [Ceratitis capitata=medflies, Peptide, 481 aa]  | S67873   | <i>Ceratitis capitata</i>           | 695   | 64 |
| ORF377 | 417131 | 415866 | tyrosyl-tRNA synthetase (tyrS)   |          |                                     |       |    |
| ORF378 | 417258 | 417566 | putative   | J01719   | <i>Escherichia coli</i>             | 821   | 45 |

| ORF    | Begin  | End    | Homology   | ID       | Species                                  | Score | I% |
|--------|--------|--------|--|----------|--|-------|----|
| ORF379 | 418326 | 417454 | whiG-Stv gene product                                    | X68709   | <i>Streptovorticillium griseocarneum</i> | 464   | 41 |
| ORF380 | 420057 | 418426 | FLHA gene product  | X63698   | <i>Bacillus subtilis</i>                 | 455   | 49 |
| ORF381 | 420448 | 420720 | ferredoxin IV  | M59855   | <i>Rhodobacter capsulatus</i>            | 174   | 63 |
| ORF382 | 420980 | 421552 | putative   |          |  |       |    |
| ORF383 | 421556 | 422029 | putative   |          |  |       |    |
| ORF384 | 422461 | 422925 | putative   |          |  |       |    |
| ORF385 | 423562 | 424320 | putative   |          |  |       |    |
| ORF386 | 424250 | 424591 | putative   |          |  |       |    |
| ORF387 | 424830 | 426047 | putative   |          |  |       |    |
| ORF388 | 426240 | 427397 | putative   |          |  |       |    |
| ORF389 | 428841 | 430703 | GcpE   | D90908   | <i>Synechocystis sp.</i>                 | 877   | 47 |
| ORF390 | 430694 | 431446 | YfiH   | U50134   | <i>Escherichia coli</i>                  | 136   | 35 |
| ORF391 | 431597 | 432100 | putative   |          |  |       |    |
| ORF392 | 432165 | 432779 | putative   |          |  |       |    |
| ORF393 | 433272 | 432832 | dihydrolipoamide succinyltransferase (sucB)              | U32839   | <i>Haemophilus influenzae</i>            | 475   | 64 |
| ORF394 | 433925 | 433227 | dihydrolipoamide succinyltransferase (sucB)              | U32839   | <i>Haemophilus influenzae</i>            | 332   | 45 |
| ORF395 | 436678 | 433934 | alpha-ketoglutarate dehydrogenase                        | U41762   | <i>Rhodobacter capsulatus</i>            | 1530  | 44 |
| ORF396 | 437176 | 438357 | oxygen-independent coproporphyrinogen III oxidase (hemN) | AE000628 | <i>Helicobacter pylori</i>               | 442   | 42 |
| ORF397 | 440317 | 438518 | putative   |          |  |       |    |
| ORF398 | 440001 | 440345 | putative   |          |  |       |    |
| ORF399 | 441233 | 440517 | ORF f286   | U18997   | <i>Escherichia coli</i>                  | 168   | 45 |
| ORF400 | 440719 | 441012 | putative   |          |  |       |    |
| ORF401 | 442192 | 441230 | putative   |          |  |       |    |
| ORF402 | 442888 | 442343 | putative   |          |  |       |    |
| ORF403 | 442371 | 442961 | putative   |          |  |       |    |
| ORF404 | 443578 | 443003 | [karp] gene products                                     | M86605   | <i>Chlamydia trachomatis</i>             | 505   | 78 |
| ORF405 | 444500 | 443526 | aminopeptidase   | D17450   | <i>Mycoplasma salivarium</i>             | 273   | 39 |
| ORF406 | 444842 | 444528 | putative   |          |  |       |    |
| ORF407 | 445009 | 444743 | putative   | L39923   | <i>Mycobacterium leprae</i>              | 133   | 33 |

| ORF    | Begin  | End    | Homology                                       | ID       | Species                       | Score | I% |
|--------|--------|--------|--|----------|-------------------------------|-------|----|
| ORF408 | 445718 | 445182 | putative                                       |          |                               |       |    |
| ORF409 | 445807 | 447804 | Sulp   | U18908   | <i>Zea mays</i>               | 1307  | 52 |
| ORF410 | 448738 | 447803 | putative                                       |          |                               |       |    |
| ORF411 | 449628 | 448618 | RuvB protein                                   | U38840   | <i>Thermotoga maritima</i>    | 845   | 53 |
| ORF412 | 450298 | 450867 | deoxycytidine triphosphate deaminase (dcd)     | AE000554 | <i>Helicobacter pylori</i>    | 573   | 58 |
| ORF413 | 450713 | 451207 | putative                                       |          |                               |       |    |
| ORF414 | 451211 | 452452 | hemolysin                                      | D90914   | <i>Synechocystis sp.</i>      | 227   | 39 |
| ORF415 | 452448 | 453659 | similar to [SwissProt Accession Number P37908] | D90888   | <i>Escherichia coli</i>       | 96    | 33 |
| ORF416 | 454843 | 453725 | NifS gene product                              | L34879   | <i>Anabaena azollae</i>       | 533   | 38 |
| ORF417 | 455608 | 454865 | hypothetical protein                           | D90908   | <i>Synechocystis sp.</i>      | 371   | 36 |
| ORF418 | 456243 | 457007 | putative                                       |          |                               |       |    |
| ORF419 | 457016 | 457708 | putative                                       |          |                               |       |    |
| ORF420 | 458368 | 457979 | unknown  | D26185   | <i>Bacillus subtilis</i>      | 152   | 36 |
| ORF421 | 459496 | 458372 | mut Y homolog                                  | U63329   | <i>Homo sapiens</i>           | 466   | 46 |
| ORF422 | 459493 | 460194 | hypothetical protein                           | D90914   | <i>Synechocystis sp.</i>      | 98    | 38 |
| ORF423 | 461446 | 460355 | putative                                       |          |                               |       |    |
| ORF424 | 462298 | 461450 | putative                                       |          |                               |       |    |
| ORF425 | 462444 | 463349 | enoyl-ACP reductase                            | Y13861   | <i>Nicotiana tabacum</i>      | 1008  | 69 |
| ORF426 | 464241 | 463342 | putative                                       |          |                               |       |    |
| ORF427 | 464574 | 465065 | putative                                       |          |                               |       |    |
| ORF428 | 465129 | 465611 | putative                                       |          |                               |       |    |
| ORF429 | 465571 | 466317 | putative                                       |          |                               |       |    |
| ORF430 | 466317 | 467093 | H. pylori predicted coding region HP0152       | AE000536 | <i>Helicobacter pylori</i>    | 246   | 36 |
| ORF431 | 466999 | 467502 | putative                                       |          |                               |       |    |
| ORF432 | 469691 | 467715 | unidentified transporter-ATP binding           | Z82044   | <i>Bacillus subtilis</i>      | 496   | 45 |
| ORF433 | 470691 | 469660 | acetyl-CoA carboxylase subunit                 | AF008220 | <i>Bacillus subtilis</i>      | 781   | 52 |
| ORF434 | 472010 | 470709 | putative                                       |          |                               |       |    |
| ORF435 | 471545 | 471799 | putative                                       |          |                               |       |    |
| ORF436 | 472359 | 472045 | putative                                       |          |                               |       |    |
| ORF437 | 473523 | 472732 | orf1   | X75413   | <i>Escherichia coli</i>       | 313   | 42 |
| ORF438 | 474889 | 473441 | murE gene product                              | Z15056   | <i>Bacillus subtilis</i>      | 679   | 37 |
| ORF439 | 477323 | 475365 | penicillin-binding protein 2                   | X59630   | <i>Neisseria meningitidis</i> | 451   | 42 |

| ORF    | Begin  | End    | Homology   | ID       | Species                       | Score | I% |
|--------|--------|--------|--|----------|-------------------------------|-------|----|
| ORF440 | 478496 | 477597 | hypothetical protein                                   | D90906   | <i>Synechocystis sp.</i>      | 534   | 52 |
| ORF441 | 478722 | 479273 | putative   |          |                               |       |    |
| ORF442 | 479277 | 479705 | putative   |          |                               |       |    |
| ORF443 | 480050 | 481450 | chromosomal replication initiator protein              | D90909   | <i>Synechocystis sp.</i>      | 793   | 40 |
| ORF444 | 481469 | 482053 | DnaA   | U35673   | <i>Borrelia burgdorferi</i>   | 157   | 37 |
| ORF445 | 482600 | 482025 | OrfH   |          |                               |       |    |
| ORF446 | 482654 | 484204 | putative   |          |                               |       |    |
|        |        |        | NADH:ubiquinone oxidoreductase subunit                 | Z37111   | <i>Vibrio alginolyticus</i>   | 801   | 49 |
|        |        |        | B  |          |                               |       |    |
| ORF447 | 484211 | 485170 | NADH:ubiquinone oxidoreductase                         | U32702   | <i>Haemophilus influenzae</i> | 258   | 48 |
|        |        |        | (GP:Z37111 4)  |          |                               |       |    |
| ORF448 | 485170 | 485838 | NADH:ubiquinone oxidoreductase                         | Z37111   | <i>Vibrio alginolyticus</i>   | 543   | 55 |
| ORF449 | 485813 | 486580 | unidentified protein of Na <sup>+</sup> -translocating | D49364   | <i>Vibrio alginolyticus</i>   | 488   | 48 |
|        |        |        | NADH-quinone reductase                                 |          |                               |       |    |
| ORF450 | 486976 | 486638 | putative   |          |                               |       |    |
| ORF451 | 489071 | 487764 | putative   |          |                               |       |    |
| ORF452 | 489341 | 489090 | putative   |          |                               |       |    |
| ORF453 | 489958 | 489152 | putative   |          |                               |       |    |
| ORF454 | 490549 | 489962 | putative   |          |                               |       |    |
| ORF455 | 491163 | 490522 | putative   |          |                               |       |    |
| ORF456 | 491396 | 491112 | putative   |          |                               |       |    |
| ORF457 | 492121 | 491390 | putative   |          |                               |       |    |
| ORF458 | 492304 | 494838 | ClpC adenosine triphosphatase                          | U02604   | <i>Bacillus subtilis</i>      | 2370  | 46 |
| ORF459 | 495943 | 494822 | hypothetical protein in purB 5' region                 | AE000213 | <i>Escherichia coli</i>       | 927   | 53 |
| ORF460 | 496011 | 496565 | putative   |          |                               |       |    |
| ORF461 | 496569 | 497228 | putative   |          |                               |       |    |
| ORF462 | 497358 | 497834 | putative   |          |                               |       |    |
| ORF463 | 497770 | 498327 | putative   |          |                               |       |    |
| ORF464 | 499209 | 499589 | putative   |          |                               |       |    |
| ORF465 | 499520 | 499792 | putative   |          |                               |       |    |
| ORF466 | 500774 | 504169 | putative 98 kDa outer membrane protein                 | U72499   | <i>Chlamydia psittaci</i>     | 1215  | 45 |
| ORF467 | 504139 | 504600 | putative 98 kDa outer membrane protein                 | U72499   | <i>Chlamydia psittaci</i>     | 319   | 47 |
| ORF468 | 504865 | 506877 | putative 98 kDa outer membrane protein                 | U72499   | <i>Chlamydia psittaci</i>     | 992   | 42 |

| ORF    | Begin  | End    | Homology                               | ID     | Species                   | Score | I% |
|--------|--------|--------|--|--------|---------------------------|-------|----|
| ORF469 | 506790 | 507671 | putative 98 kDa outer membrane protein | U72499 | <i>Chlamydia psittaci</i> | 739   | 46 |
| ORF470 | 507718 | 510507 | putative 98 kDa outer membrane protein | U72499 | <i>Chlamydia psittaci</i> | 1813  | 42 |
| ORF471 | 508325 | 507912 | putative                               |        |                           |       |    |
| ORF472 | 510660 | 513440 | POMP90A precursor                      | U65942 | <i>Chlamydia psittaci</i> | 1830  | 46 |
| ORF473 | 514965 | 513787 | hypothetical                           | D83026 | <i>Bacillus subtilis</i>  | 482   | 48 |
| ORF474 | 517347 | 515419 | putative 98 kDa outer membrane protein | U72499 | <i>Chlamydia psittaci</i> | 1554  | 51 |
| ORF475 | 517058 | 517363 | putative                               |        |                           |       |    |
| ORF476 | 517798 | 517277 | putative 98 kDa outer membrane protein | U72499 | <i>Chlamydia psittaci</i> | 222   | 41 |
| ORF477 | 518200 | 517847 | POMP91B precursor                      | U65943 | <i>Chlamydia psittaci</i> | 162   | 42 |
| ORF478 | 518300 | 521146 | putative 98 kDa outer membrane protein | U72499 | <i>Chlamydia psittaci</i> | 1900  | 45 |
| ORF479 | 521392 | 522948 | POMP91A                                | U65942 | <i>Chlamydia psittaci</i> | 490   | 39 |
| ORF480 | 523244 | 524809 | putative 98 kDa outer membrane protein | U72499 | <i>Chlamydia psittaci</i> | 507   | 35 |
| ORF481 | 524379 | 524125 | putative                               |        |                           |       |    |
| ORF482 | 524649 | 526238 | putative 98 kDa outer membrane protein | U72499 | <i>Chlamydia psittaci</i> | 969   | 41 |
| ORF483 | 526265 | 527104 | putative                               |        |                           |       |    |
| ORF484 | 526947 | 526702 | putative                               |        |                           |       |    |
| ORF485 | 526975 | 528450 | putative 98 kDa outer membrane protein | U72499 | <i>Chlamydia psittaci</i> | 197   | 48 |
| ORF486 | 528408 | 529199 | putative outer membrane protein        | U72499 | <i>Chlamydia psittaci</i> | 154   | 37 |
| ORF487 | 530612 | 529542 | putative                               |        |                           |       |    |
| ORF488 | 531656 | 530616 | putative                               |        |                           |       |    |
| ORF489 | 533974 | 532067 | putative                               |        |                           |       |    |
| ORF490 | 536432 | 534324 | putative                               |        |                           |       |    |
| ORF491 | 537150 | 536707 | putative                               |        |                           |       |    |
| ORF492 | 537928 | 537080 | putative                               |        |                           |       |    |
| ORF493 | 538438 | 537932 | putative                               |        |                           |       |    |
| ORF494 | 538737 | 538333 | putative                               |        |                           |       |    |
| ORF495 | 539594 | 539127 | putative                               |        |                           |       |    |
| ORF496 | 541215 | 539590 | putative                               |        |                           |       |    |
| ORF497 | 542571 | 541282 | putative                               |        |                           |       |    |
| ORF498 | 543014 | 542457 | putative                               |        |                           |       |    |
| ORF499 | 543369 | 542962 | putative                               |        |                           |       |    |
| ORF500 | 543809 | 546628 | putative 98 kDa outer membrane protein | U72499 | <i>Chlamydia psittaci</i> | 506   | 89 |
| ORF501 | 546619 | 549525 | POMP91A                                | U65942 | <i>Chlamydia psittaci</i> | 128   | 50 |

| ORF    | Begin  | End    | Homology   | ID       | Species                         | Score | I% |
|--------|--------|--------|--|----------|---------------------------------|-------|----|
| ORF502 | 547293 | 546994 | putative   |          |                                 |       |    |
| ORF503 | 549699 | 550523 | putative 98 kDa outer membrane protein   | U72499   | <i>Chlamydia psittaci</i>       | 96    | 32 |
| ORF504 | 550490 | 551551 | putative 98 kDa outer membrane protein   | U72499   | <i>Chlamydia psittaci</i>       | 223   | 33 |
| ORF505 | 551448 | 552623 | putative 98 kDa outer membrane protein   | U72499   | <i>Chlamydia psittaci</i>       | 139   | 46 |
| ORF506 | 552652 | 555117 | putative 98 kDa outer membrane protein   | U72499   | <i>Chlamydia psittaci</i>       | 487   | 48 |
| ORF507 | 555029 | 555493 | putative   |          |                                 |       |    |
| ORF508 | 558006 | 555673 | putative   |          |                                 |       |    |
| ORF509 | 559694 | 558162 | putative   |          |                                 |       |    |
| ORF510 | 558208 | 558573 | putative   |          |                                 |       |    |
| ORF511 | 561692 | 559899 | putative   |          |                                 |       |    |
| ORF512 | 561412 | 561708 | putative   |          |                                 |       |    |
| ORF513 | 563942 | 561777 | 1,4-alpha-glucan branching enzyme  | X73903   | <i>Streptomyces coelicolor</i>  | 1743  | 45 |
| ORF514 | 564969 | 563950 | putative   |          |                                 |       |    |
| ORF515 | 566204 | 564936 | YqeV   | D84432   | <i>Bacillus subtilis</i>        | 639   | 38 |
| ORF516 | 567717 | 566302 | putative GTPase required for high frequency lysogenization by bacteriophage lambda | U00005   | <i>Escherichia coli</i>         | 686   | 41 |
| ORF517 | 568526 | 567708 | putative   |          |                                 |       |    |
| ORF518 | 569467 | 568742 | putative   |          |                                 |       |    |
| ORF519 | 571065 | 569431 | putative   |          |                                 |       |    |
| ORF520 | 571828 | 571118 | arginine-binding periplasmic protein 1 precursor                                   | AE000188 | <i>Escherichia coli</i>         | 197   | 45 |
| ORF521 | 572202 | 573308 | putative   |          |                                 |       |    |
| ORF522 | 573146 | 575056 | putative   |          |                                 |       |    |
| ORF523 | 575023 | 575916 | carboxysome formation protein  | D90901   | <i>Synechocystis sp.</i>        | 557   | 59 |
| ORF524 | 577891 | 576497 | putative   |          |                                 |       |    |
| ORF525 | 578914 | 578204 | putative   |          |                                 |       |    |
| ORF526 | 579924 | 578857 | putative   |          |                                 |       |    |
| ORF527 | 580187 | 579858 | protein kinase C inhibitor   | D90906   | <i>Synechocystis sp.</i>        | 260   | 49 |
| ORF528 | 580017 | 580406 | putative   |          |                                 |       |    |
| ORF529 | 581086 | 580187 | Yer156cp   | U18917   | <i>Saccharomyces cerevisiae</i> | 176   | 34 |
| ORF530 | 581367 | 581828 | putative   |          |                                 |       |    |
| ORF531 | 581678 | 582367 | putative   |          |                                 |       |    |

| ORF    | Begin  | End    | Homology  | ID       | Species                         | Score | I%  |
|--------|--------|--------|---|----------|---------------------------------|-------|-----|
| ORF532 | 582361 | 583428 | putative  |          |                                 |       |     |
| ORF533 | 584690 | 583431 | putative  |          |                                 |       |     |
| ORF534 | 585237 | 584950 | putative  |          |                                 |       |     |
| ORF535 | 585626 | 586888 | hypothetical protein  | D64004   | <i>Synechocystis</i> sp.        | 805   | 45  |
| ORF536 | 586846 | 587907 | putative  |          |                                 |       |     |
| ORF537 | 589049 | 588180 | putative  |          |                                 |       |     |
| ORF538 | 590500 | 589301 | putative  |          |                                 |       |     |
| ORF539 | 590755 | 592458 | aminoacyl-tRNA synthetase   | L25105   | <i>Chlamydia trachomatis</i>    | 2125  | 71  |
| ORF540 | 592526 | 592903 | has homology to putative heat shock proteins of <i>Bacillus subtilis</i> and <i>Clostridium acetobutylicum</i> ; ORF-A; putative                  | L25105   | <i>Chlamydia trachomatis</i>    | 324   | 59  |
| ORF541 | 592836 | 593747 | Possible negative regulator of CIRCE element; Homologs in <i>B. subtilis</i> and <i>Clostridia</i> spp. referred to as <i>hrcA</i> or <i>orfA</i> | U52216   | <i>Chlamydia trachomatis</i>    | 960   | 65  |
| ORF542 | 593747 | 594298 | <i>grpE</i>   | M62819   | <i>Chlamydia trachomatis</i>    | 661   | 71  |
| ORF543 | 594331 | 595947 | DnaK protein homolog; 71,550 Da; putative   | M69227   | <i>Chlamydia pneumoniae</i>     | 2619  | 100 |
| ORF544 | 595905 | 596309 | DnaK protein homolog; 71,550 Da; putative   | M69227   | <i>Chlamydia pneumoniae</i>     | 674   | 100 |
| ORF545 | 596514 | 597215 | putative  |          |                                 |       |     |
| ORF546 | 597184 | 597957 | <i>vacB</i> gene product  | U14003   | <i>Escherichia coli</i>         | 306   | 48  |
| ORF547 | 597755 | 598612 | ORF-2   | D11024   | <i>Shigella flexneri</i>        | 168   | 46  |
| ORF548 | 598602 | 599204 | homologous to DNA glycosylases; hypothetical  | D83026   | <i>Bacillus subtilis</i>        | 374   | 47  |
| ORF549 | 599373 | 599939 | putative  |          |                                 |       |     |
| ORF550 | 600903 | 602072 | hemolysin   | X73141   | <i>Serpulina hyodysenteriae</i> | 362   | 36  |
| ORF551 | 602240 | 602587 | hypothetical protein  | D90908   | <i>Synechocystis</i> sp.        | 182   | 35  |
| ORF552 | 602637 | 603272 | putative  |          |                                 |       |     |
| ORF553 | 603142 | 604512 | putative  |          |                                 |       |     |
| ORF554 | 604627 | 605853 | conserved hypothetical protein  | AE000579 | <i>Helicobacter pylori</i>      | 423   | 40  |
| ORF555 | 605790 | 606620 | putative  |          |                                 |       |     |
| ORF556 | 606571 | 607281 | putative  | L14679   | <i>Lactococcus lactis</i>       | 384   | 45  |
| ORF557 | 609004 | 607355 | putative  |          |                                 |       |     |



| ORF    | Begin  | End    | Homology  | ID       | Species                         | Score | I% |
|--------|--------|--------|---|----------|---------------------------------|-------|----|
| ORF558 | 610906 | 609932 | putative  |          |                                 |       |    |
| ORF559 | 611786 | 611004 | diaminopimelate epimerase                       | D90917   | <i>Synechocystis</i> sp.        | 207   | 55 |
| ORF560 | 612333 | 611746 | ATP-dependent Clp protease proteolytic subunit  | D90915   | <i>Synechocystis</i> sp.        | 389   | 44 |
| ORF561 | 613897 | 612341 | serine hydroxymethyltransferase                 | D90903   | <i>Synechocystis</i> sp.        | 909   | 52 |
| ORF562 | 615179 | 616279 | putative  |          |                                 |       |    |
| ORF563 | 616610 | 617383 | putative  |          |                                 |       |    |
| ORF564 | 618796 | 617810 | ORF o328  | U18997   | <i>Escherichia coli</i>         | 413   | 45 |
| ORF565 | 620004 | 618826 | branched chain alpha-keto acid dehydrogenase E2 | M97391   | <i>Bacillus subtilis</i>        | 688   | 41 |
| ORF566 | 619649 | 619918 | putative  |          |                                 |       |    |
| ORF567 | 621265 | 620021 | Hypothetical protein                            | Y14083   | <i>Bacillus subtilis</i>        | 727   | 37 |
| ORF568 | 622359 | 621265 | hypothetical                                    | U32691   | <i>Haemophilus influenzae</i>   | 294   | 52 |
| ORF569 | 623420 | 622560 | rRNA methylase                                  | D90913   | <i>Synechocystis</i> sp.        | 244   | 38 |
| ORF570 | 624297 | 623335 | hypothetical protein (SP:P39587)                | U67605   | <i>Methanococcus jannaschii</i> | 147   | 35 |
| ORF571 | 624773 | 624174 | riboflavin synthase alpha chain                 | AE000261 | <i>Escherichia coli</i>         | 424   | 50 |
| ORF572 | 625029 | 625484 | ORF 168   | D28752   | <i>Synechococcus</i> sp.        | 323   | 43 |
| ORF573 | 625488 | 625883 | YieA  | AF008220 | <i>Bacillus subtilis</i>        | 172   | 35 |
| ORF574 | 625892 | 626395 | signalpeptidase II                              | X78084   | <i>Staphylococcus carnosus</i>  | 204   | 38 |
| ORF575 | 626444 | 627790 | D-alanine permease (dagA)                       | U32770   | <i>Haemophilus influenzae</i>   | 566   | 33 |
| ORF576 | 627912 | 628607 | putative  |          |                                 |       |    |
| ORF577 | 628774 | 629697 | putative  |          |                                 |       |    |
| ORF578 | 629660 | 631639 | POMP91A   | U65942   | <i>Chlamydia psittaci</i>       | 579   | 44 |
| ORF579 | 631725 | 633551 | putative  |          |                                 |       |    |
| ORF580 | 633520 | 636957 | putative 98 kDa outer membrane protein          | U72499   | <i>Chlamydia psittaci</i>       | 266   | 45 |
| ORF581 | 637232 | 638098 | adhesion protein                                | D90903   | <i>Synechocystis</i> sp.        | 267   | 38 |
| ORF582 | 640648 | 639593 | GTP-binding protein                             | D90901   | <i>Synechocystis</i> sp.        | 759   | 45 |
| ORF583 | 640979 | 640728 | 50S ribosomal protein L27                       | U38804   | <i>Porphyra purpurea</i>        | 265   | 65 |
| ORF584 | 641327 | 641007 | 50S ribosomal subunit protein L21               | U18997   | <i>Escherichia coli</i>         | 210   | 41 |
| ORF585 | 641687 | 642283 | hypothetical protein                            | D90906   | <i>Synechocystis</i> sp.        | 76    | 39 |
| ORF586 | 643023 | 642286 | assimilatory sulfite reductase                  | L26503   | <i>Saccharomyces cerevisiae</i> | 284   | 42 |
| ORF587 | 643330 | 643076 | putative  |          |                                 |       |    |
| ORF588 | 643704 | 643351 | ribosomal protein S10 (rpS10)                   | U32761   | <i>Haemophilus influenzae</i>   | 349   | 69 |

| ORF    | Begin  | End    | Homology   | ID       | Species                               | Score | I%  |
|--------|--------|--------|--|----------|---------------------------------------|-------|-----|
| ORF589 | 645628 | 643676 | translation elongation factor EF-G (fusA)  | AE000625 | <i>Helicobacter pylori</i>            | 1991  | 58  |
| ORF590 | 645783 | 645538 | elongation factor G (AA 1-691)   | X16278   | <i>Thermus aquaticus thermophilus</i> | 170   | 80  |
| ORF591 | 646269 | 645793 | ribosomal protein S7   | Z11567   | <i>Chlamydia trachomatis</i>          | 730   | 88  |
| ORF592 | 646751 | 646314 | ribosomal protein S12 (AA 1-123)   | X52912   | <i>Cryptomonas phi</i>                | 485   | 67  |
| ORF593 | 647848 | 647045 | putative   |          |                                       |       |     |
| ORF594 | 648393 | 650336 | ORF of prc gene (alt.)   | D00674   | <i>Escherichia coli</i>               | 554   | 42  |
| ORF595 | 651016 | 650420 | hypothetical sulfur-rich protein   | U41759   | <i>Chlamydia psittaci</i>             | 301   | 50  |
| ORF596 | 652956 | 651289 | 60kDa CrP  | X53511   | <i>Chlamydia pneumoniae</i>           | 2951  | 100 |
| ORF597 | 653395 | 653126 | 9kDa CrP   | X53511   | <i>Chlamydia pneumoniae</i>           | 502   | 99  |
| ORF598 | 655740 | 654193 | glutamyl-tRNA synthetase homolog   | U41759   | <i>Chlamydia psittaci</i>             | 2259  | 82  |
| ORF599 | 656508 | 655966 | early stage-specific transcription experimentally demonstrated; early upstream open reading frame (EUO)                | L13598   | <i>Chlamydia psittaci</i>             | 666   | 62  |
| ORF600 | 658140 | 657022 | unknown  | U41759   | <i>Chlamydia psittaci</i>             | 950   | 44  |
| ORF601 | 660216 | 658525 | RecI recombination protein   | U41759   | <i>Chlamydia psittaci</i>             | 807   | 73  |
| ORF602 | 663238 | 660248 | protein-export membrane protein SecD   | D64000   | <i>Synechocystis sp.</i>              | 413   | 41  |
| ORF603 | 664461 | 663157 | putative   |          |                                       |       |     |
| ORF604 | 665735 | 664635 | putative   |          |                                       |       |     |
| ORF605 | 666212 | 666994 | hypothetical protein   | D64006   | <i>Synechocystis sp.</i>              | 538   | 58  |
| ORF606 | 666998 | 667921 | o298; This 298 aa orf is 33 pct identical (24 gaps) to 248 residues of an approx. 256 aa protein CDSA_ECOLI SW: P06466 | AE000238 | <i>Escherichia coli</i>               | 253   | 45  |
| ORF607 | 667909 | 668568 | cytidylate kinase  | AE000193 | <i>Escherichia coli</i>               | 400   | 48  |
| ORF608 | 668502 | 669203 | hypothetical protein   | D90915   | <i>Synechocystis sp.</i>              | 225   | 33  |
| ORF609 | 669154 | 670893 | arginyl-tRNA-synthetase  | D64006   | <i>Synechocystis sp.</i>              | 1365  | 49  |
| ORF610 | 672226 | 670853 | UDP-N-acetylglucosamine enolpyruvyl transferase (murZ)   | U32788   | <i>Haemophilus influenzae</i>         | 642   | 40  |
| ORF611 | 671137 | 671424 | putative   |          |                                       |       |     |
| ORF612 | 672453 | 673001 | putative   |          |                                       |       |     |
| ORF613 | 673072 | 674721 | putative   |          |                                       |       |     |
| ORF614 | 674549 | 674262 | putative   |          |                                       |       |     |
| ORF615 | 675518 | 674796 | ORF246 gene product  | X59551   | <i>Escherichia coli</i>               | 520   | 43  |
| ORF616 | 676083 | 675499 | putative   |          |                                       |       |     |

| ORF    | Begin  | End    | Homology   | ID       | Species                         | Score | I% |
|--------|--------|--------|--|----------|---------------------------------|-------|----|
| ORF617 | 676630 | 676067 | putative   | D10279   | <i>Bacillus subtilis</i>        | 361   | 63 |
| ORF618 | 677016 | 676600 | ORF3   | X99401   | <i>Bacillus firmus</i>          | 427   | 43 |
| ORF619 | 677647 | 677015 | peptide release factor 2                         | Z49939   | <i>Saccharomyces cerevisiae</i> | 175   | 48 |
| ORF620 | 677990 | 678259 | unknown  | D26185   | <i>Bacillus subtilis</i>        | 263   | 38 |
| ORF621 | 679444 | 680097 | unknown  | D64126   | <i>Bacillus subtilis</i>        | 506   | 45 |
| ORF622 | 680097 | 680897 | unknown  |          |                                 |       |    |
| ORF623 | 681637 | 680849 | putative   |          |                                 |       |    |
| ORF624 | 681409 | 682281 | putative   |          |                                 |       |    |
| ORF625 | 682453 | 682821 | putative   | L39904   | <i>Myxococcus xanthus</i>       | 190   | 48 |
| ORF626 | 682763 | 683902 | sensor protein                                   |          |                                 |       |    |
| ORF627 | 684616 | 683969 | putative   |          |                                 |       |    |
| ORF628 | 685169 | 684534 | putative   |          |                                 |       |    |
| ORF629 | 685986 | 685117 | putative   | U17902   | <i>Escherichia coli</i>         | 820   | 45 |
| ORF630 | 686278 | 687288 | NtrC/NifA-like protein regulator                 |          |                                 |       |    |
| ORF631 | 687483 | 688151 | putative   |          |                                 |       |    |
| ORF632 | 688740 | 689501 | putative   |          |                                 |       |    |
| ORF633 | 690242 | 689622 | putative   | Z48008   | <i>Saccharomyces cerevisiae</i> | 380   | 46 |
| ORF634 | 690470 | 691126 | unknown  |          |                                 |       |    |
| ORF635 | 692600 | 691497 | putative   | U32810   | <i>Haemophilus influenzae</i>   | 593   | 45 |
| ORF636 | 692674 | 695064 | phenylalanyl-tRNA synthetase beta-subunit (pheT) |          |                                 |       |    |
| ORF637 | 695049 | 696032 | putative   |          |                                 |       |    |
| ORF638 | 697964 | 696585 | OppC-like protein                                | D85103   | <i>Synechococcus sp.</i>        | 371   | 37 |
| ORF639 | 699803 | 698274 | OppB gene product                                | X56347   | <i>Bacillus subtilis</i>        | 197   | 40 |
| ORF640 | 701926 | 699788 | AppA   | U20909   | <i>Bacillus subtilis</i>        | 324   | 43 |
| ORF641 | 703196 | 702567 | putative   |          |                                 |       |    |
| ORF642 | 704221 | 703208 | putative   | X73417   | <i>Arabidopsis thaliana</i>     | 266   | 42 |
| ORF643 | 704240 | 705289 | ferrochelatase                                   | U58045   | <i>Campylobacter jejuni</i>     | 128   | 31 |
| ORF644 | 706070 | 705300 | histidine periplasmic binding protein P29        | AE000592 | <i>Helicobacter pylori</i>      | 155   | 37 |
| ORF645 | 706841 | 706254 | conserved hypothetical protein                   |          |                                 |       |    |
| ORF646 | 707596 | 706811 | putative   | X55650   | <i>Solanum tuberosum</i>        | 595   | 43 |
| ORF647 | 708666 | 707677 | ADP-glucose pyrophosphorylase                    | X71842   | <i>Arabidopsis thaliana</i>     | 400   | 44 |
| ORF648 | 709793 | 709119 | pyrE-F gene product                              |          |                                 |       |    |

| ORF    | Begin  | End    | Homology   | ID     | Species                         | Score | I% |
|--------|--------|--------|--|--------|---------------------------------|-------|----|
| ORF649 | 711523 | 710132 | transcription termination factor                             | J01673 | <i>Escherichia coli</i>         | 1251  | 60 |
| ORF650 | 712236 | 711523 | putative   |        |                                 |       |    |
| ORF651 | 714734 | 712125 | DNA polymerase I   | J04479 | <i>Streptococcus pneumoniae</i> | 1334  | 43 |
| ORF652 | 715759 | 714761 | protease IV  | U67512 | <i>Methanococcus jannaschii</i> | 101   | 55 |
| ORF653 | 717538 | 715886 | adenine nucleotide translocase                               | Z49227 | <i>Arabidopsis thaliana</i>     | 832   | 39 |
| ORF654 | 719113 | 720243 | replicative DNA helicase                                     | D26185 | <i>Bacillus subtilis</i>        | 776   | 44 |
| ORF655 | 720590 | 722422 | homologous to E.coli gidA                                    | X62540 | <i>Pseudomonas putida</i>       | 1575  | 52 |
| ORF656 | 722406 | 723056 | putative   |        |                                 |       |    |
| ORF657 | 723551 | 723120 | nucleoside 5'-diphosphate<br>phosphotransferase (EC 2.7.4.6) | J05207 | <i>Myxococcus xanthus</i>       | 451   | 62 |
| ORF658 | 724246 | 723626 | Holliday junction DNA helicase (ruvA)                        | U32716 | <i>Haemophilus influenzae</i>   | 293   | 43 |
| ORF659 | 724754 | 724251 | crossover junction endodeoxyribonuclease<br>(ruvC)           | U32717 | <i>Haemophilus influenzae</i>   | 296   | 53 |
| ORF660 | 725868 | 724900 | putative   |        |                                 |       |    |
| ORF661 | 727115 | 726270 | putative   |        |                                 |       |    |
| ORF662 | 728126 | 727119 | glyceraldehyde-3-phosphate dehydrogenase                     | U83198 | <i>Chlamydia trachomatis</i>    | 1340  | 75 |
| ORF663 | 728594 | 728208 | ribosomal protein L17  | L33834 | <i>Chlamydia trachomatis</i>    | 439   | 82 |
| ORF664 | 729614 | 728604 | RNA polymerase alpha-subunit                                 | L33834 | <i>Chlamydia trachomatis</i>    | 1356  | 89 |
| ORF665 | 729778 | 729533 | RNA polymerase alpha-subunit                                 | L33834 | <i>Chlamydia trachomatis</i>    | 273   | 82 |
| ORF666 | 730149 | 729751 | ribosomal protein S11  | L33834 | <i>Chlamydia trachomatis</i>    | 562   | 90 |
| ORF667 | 730539 | 730174 | ribosomal protein S13  | L33834 | <i>Chlamydia trachomatis</i>    | 544   | 89 |
| ORF668 | 731983 | 730598 | homolog  | L25077 | <i>Chlamydia trachomatis</i>    | 1956  | 83 |
| ORF669 | 732427 | 731996 | ribosomal protein CtrL15e                                    | M80325 | <i>Chlamydia trachomatis</i>    | 563   | 77 |
| ORF670 | 732917 | 732423 | ribosomal protein CtrS5e                                     | M80325 | <i>Chlamydia trachomatis</i>    | 702   | 84 |
| ORF671 | 733598 | 733320 | ribosomal protein L6   | M60652 | <i>Chlamydia trachomatis</i>    | 316   | 87 |
| ORF672 | 733869 | 733492 | ribosomal protein L6   | M60652 | <i>Chlamydia trachomatis</i>    | 469   | 77 |
| ORF673 | 734298 | 733900 | ribosomal protein CtrS8e                                     | M80325 | <i>Chlamydia trachomatis</i>    | 572   | 82 |
| ORF674 | 734858 | 734319 | ribosomal protein CtrL5e                                     | M80325 | <i>Chlamydia trachomatis</i>    | 730   | 90 |
| ORF675 | 735195 | 734863 | ribosomal protein CtrL24e                                    | M80325 | <i>Chlamydia trachomatis</i>    | 420   | 70 |
| ORF676 | 735578 | 735342 | ribosomal protein CtrL14e                                    | M80325 | <i>Chlamydia trachomatis</i>    | 270   | 95 |
| ORF677 | 735861 | 735604 | ribosomal protein S17e                                       | M80325 | <i>Chlamydia trachomatis</i>    | 322   | 77 |
| ORF678 | 736492 | 736079 | 50S ribosomal protein L16                                    | D90905 | <i>Synechocystis sp.</i>        | 439   | 60 |

| ORF    | Begin  | End    | Homology  | ID       | Species                                     | Score | I% |
|--------|--------|--------|---|----------|---|-------|----|
| ORF679 | 737192 | 736524 | ribosomal protein S3  | D64071   | <i>Actinobacillus actinomycetemcomitans</i> | 612   | 58 |
| ORF680 | 737555 | 737211 | ribosomal protein L22   |          |   |       |    |
| ORF681 | 738688 | 737837 | 50S ribosomal subunit protein L2  | Z21677   | <i>Thermotoga maritima</i>                  | 228   | 48 |
| ORF682 | 739048 | 738713 | putative  | U18997   | <i>Escherichia coli</i>                     | 769   | 62 |
| ORF683 | 739736 | 739065 | ribosomal protein L4  |          |   |       |    |
| ORF684 | 740477 | 739773 | ribosomal protein L3  | X67014   | <i>Bacillus stearothermophilus</i>          | 308   | 46 |
| ORF685 | 740659 | 740958 | putative  | Z46265   | <i>Thermus aquaticus thermophilus</i>       | 463   | 50 |
| ORF686 | 741722 | 740721 | putative  |          |   |       |    |
| ORF687 | 742789 | 741827 | methionyl-tRNA formyltransferase  | D64001   | <i>Synechocystis sp.</i>                    | 511   | 48 |
| ORF688 | 743618 | 742782 | UDP-N-acetylglucosamine acyltransferase   | L22690   | <i>Rickettsia rickettsii</i>                | 542   | 43 |
| ORF689 | 744092 | 743634 | (3R)-hydroxymyristol acyl carrier protein dehydrase   | D90910   | <i>Synechocystis sp.</i>                    | 339   | 55 |
| ORF690 | 744604 | 744107 | UDP-3-O-acyl N-acetylglucosamine deacetylase  | D90902   | <i>Synechocystis sp.</i>                    | 287   | 45 |
| ORF691 | 744953 | 744498 | UDP-3-O-acyl-GlcNAc deacetylase   | U67855   | <i>Pseudomonas aeruginosa</i>               | 262   | 51 |
| ORF692 | 746608 | 744986 | apolipoprotein N-acyltransferase (cute)   | U32716   | <i>Haemophilus influenzae</i>               | 194   | 50 |
| ORF693 | 747085 | 746621 | low homology to P14 protein of Hemophilus influenzae and 14.2 kDa protein of Escherichia coli | D78189   | <i>Bacillus subtilis</i>                    | 235   | 37 |
| ORF694 | 747974 | 747219 | polymerase III  | M22996   | <i>Bacillus subtilis</i>                    | 180   | 34 |
| ORF695 | 748594 | 748169 | hypothetical protein  | D90914   | <i>Synechocystis sp.</i>                    | 160   | 43 |
| ORF696 | 749145 | 748573 | putative  |          |   |       |    |
| ORF697 | 749652 | 749957 | trxA  | L39892   | <i>Chlamydia psittaci</i>                   | 393   | 72 |
| ORF698 | 750446 | 749979 | spoU  | L39892   | <i>Chlamydia psittaci</i>                   | 559   | 72 |
| ORF699 | 751219 | 750446 | mip   | L39892   | <i>Chlamydia psittaci</i>                   | 948   | 60 |
| ORF700 | 753042 | 751291 | aspartyl-tRNA synthetase  | D90910   | <i>Synechocystis sp.</i>                    | 1347  | 47 |
| ORF701 | 754309 | 753020 | histidine-tRNA ligase   | Z17214   | <i>Streptococcus equisimilis</i>            | 757   | 44 |
| ORF702 | 755120 | 756175 | hexosephosphate transport protein   | M89480   | <i>Salmonella typhimurium</i>               | 870   | 49 |
| ORF703 | 756120 | 756485 | hexosephosphate transport protein   | M89479   | <i>Escherichia coli</i>                     | 321   | 45 |
| ORF704 | 756499 | 760227 | DNA polymerase III alpha-subunit (dnaE)   | AE000646 | <i>Helicobacter pylori</i>                  | 1977  | 42 |
| ORF705 | 761217 | 760297 | putative  |          |   |       |    |
| ORF706 | 761297 | 761809 | putative  |          |   |       |    |

| ORF    | Begin  | End    | Homology   | ID       | Species                              | Score | I% |
|--------|--------|--------|--|----------|--------------------------------------|-------|----|
| ORF707 | 761782 | 762282 | putative   |          |                                      |       |    |
| ORF708 | 762260 | 762895 | putative   |          |                                      |       |    |
| ORF709 | 762867 | 763316 | hypothetical protein   | D90908   | <i>Synechocystis</i> sp.             | 177   | 43 |
| ORF710 | 763780 | 763325 | putative   |          |                                      |       |    |
| ORF711 | 763861 | 765168 | DD-carboxypeptidase  | M85047   | <i>Bacillus subtilis</i>             | 292   | 37 |
| ORF712 | 766809 | 765697 | fmu and fmv protein  | D90902   | <i>Synechocystis</i> sp.             | 130   | 36 |
| ORF713 | 768051 | 766888 | putative   |          |                                      |       |    |
| ORF714 | 768566 | 768321 | putative   |          |                                      |       |    |
| ORF715 | 769342 | 768551 | putative   |          |                                      |       |    |
| ORF716 | 770532 | 769378 | putative   |          |                                      |       |    |
| ORF717 | 771451 | 770804 | putative   |          |                                      |       |    |
| ORF718 | 773058 | 771847 | 3-phosphoglycerate kinase  | U83197   | <i>Chlamydia trachomatis</i>         | 1540  | 72 |
| ORF719 | 773094 | 773456 | putative   |          |                                      |       |    |
| ORF720 | 774376 | 773093 | putative phosphate permease  | U84890   | <i>Mesembryanthemum crystallinum</i> | 870   | 45 |
| ORF721 | 775123 | 774380 | putative   |          |                                      |       |    |
| ORF722 | 775398 | 774916 | putative   |          |                                      |       |    |
| ORF723 | 775046 | 776077 | sporulation protein  | M57689   | <i>Bacillus subtilis</i>             | 698   | 43 |
| ORF724 | 776070 | 777041 | was dppE   | U00039   | <i>Escherichia coli</i>              | 565   | 56 |
| ORF725 | 777964 | 777536 | orf288; translated orf similarity to SWISS-PROT: YGI2_PSEPU hypothetical 32.4 kDa protein of <i>Pseudomonas putida</i> | Y10436   | <i>Coxiella burnetii</i>             | 256   | 46 |
| ORF726 | 778176 | 777904 | B.subtilis genes rpmH, mpA, 50kd, gidA and gidB  | X62539   | <i>Bacillus subtilis</i>             | 112   | 37 |
| ORF727 | 778621 | 779334 | putative   |          |                                      |       |    |
| ORF728 | 781173 | 780307 | f406; This 406 aa orf is 28 pct identical (12 gaps) to 264 residues of an approx. 440 aa protein YAOA SCHPO SW: Q10089 | AE000263 | <i>Escherichia coli</i>              | 603   | 40 |
| ORF729 | 781526 | 781116 | f406; This 406 aa orf is 28 pct identical (12 gaps) to 264 residues of an approx. 440 aa protein YAOA SCHPO SW: Q10089 | AE000263 | <i>Escherichia coli</i>              | 258   | 45 |
| ORF730 | 782784 | 781555 | f423; This 423 aa orf is 29 pct identical (1 gaps) to 172 residues of an approx. 488 aa protein YC24 CYAPA SW: P48260  | AE000263 | <i>Escherichia coli</i>              | 197   | 44 |

| ORF    | Begin  | End    | Homology                                     | ID     | Species                           | Score | I% |
|--------|--------|--------|--|--------|-----------------------------------|-------|----|
| ORF731 | 783572 | 782805 | hypothetical chloroplast ORF 16              | U38804 | <i>Porphyra purpurea</i>          | 597   | 52 |
| ORF732 | 785032 | 783581 | ABC transporter subunit                      | D64004 | <i>Synechocystis sp.</i>          | 1720  | 62 |
| ORF733 | 786412 | 785360 | putative                                     |        |                                   |       |    |
| ORF734 | 788429 | 786450 | pbp  | Y14206 | <i>Streptomyces coelicolor</i>    | 148   | 55 |
| ORF735 | 788944 | 788528 | penicillin-binding protein 3                 | X84053 | <i>Pseudomonas aeruginosa</i>     | 148   | 38 |
| ORF736 | 789758 | 788901 | putative                                     |        |                                   |       |    |
| ORF737 | 790332 | 791504 | major outer membrane protein                 | M64064 | <i>Chlamydia pneumoniae</i>       | 2028  | 99 |
| ORF738 | 791846 | 792721 | ribosomal protein S2                         | U60196 | <i>Chlamydia trachomatis</i>      | 904   | 70 |
| ORF739 | 792724 | 793569 | elongation factor Ts                         | U60196 | <i>Chlamydia trachomatis</i>      | 1023  | 71 |
| ORF740 | 793580 | 794323 | UMP kinase                                   | U60196 | <i>Chlamydia trachomatis</i>      | 891   | 72 |
| ORF741 | 794304 | 794843 | ribosome-releasing factor                    | U60196 | <i>Chlamydia trachomatis</i>      | 673   | 73 |
| ORF742 | 795217 | 795732 | unknown                                      | D26185 | <i>Bacillus subtilis</i>          | 105   | 42 |
| ORF743 | 795722 | 796795 | unknown                                      | D26185 | <i>Bacillus subtilis</i>          | 208   | 33 |
| ORF744 | 798735 | 797053 | putative                                     | L33796 | <i>Vibrio cholerae</i>            | 386   | 34 |
| ORF745 | 799823 | 798681 | putative                                     |        |                                   |       |    |
| ORF746 | 799297 | 799578 | putative                                     |        |                                   | 345   | 33 |
| ORF747 | 801313 | 799808 | Pkn5   | U40656 | <i>Myxococcus xanthus</i>         |       |    |
| ORF748 | 802453 | 801332 | putative                                     |        |                                   |       |    |
| ORF749 | 803299 | 802457 | putative                                     |        |                                   |       |    |
| ORF750 | 803811 | 803290 | putative                                     |        |                                   |       |    |
| ORF751 | 805151 | 803826 | YscN   | U02499 | <i>Yersinia enterocolitica</i>    | 1185  | 53 |
| ORF752 | 805860 | 805156 | putative                                     |        |                                   |       |    |
| ORF753 | 806604 | 806332 | putative                                     |        |                                   |       |    |
| ORF754 | 806913 | 806608 | putative                                     |        |                                   |       |    |
| ORF755 | 808222 | 806903 | putative                                     |        |                                   |       |    |
| ORF756 | 808751 | 808146 | putative                                     |        |                                   |       |    |
| ORF757 | 809437 | 808673 | putative                                     |        |                                   |       |    |
| ORF758 | 809939 | 809454 | putative                                     |        |                                   |       |    |
| ORF759 | 811235 | 810213 | delta-aminolevulinate synthase (EC 2.3.1.37) | M30785 | <i>Escherichia coli</i>           | 172   | 40 |
| ORF760 | 811779 | 813056 | DNA gyrase subunit B                         | U35453 | <i>Clostridium acetobutylicum</i> | 584   | 38 |
| ORF761 | 812890 | 812516 | putative                                     |        |                                   |       |    |
| ORF762 | 812954 | 813583 | DNA gyrase subunit B                         | Z19108 | <i>Spiroplasma citri</i>          | 371   | 39 |

| ORF    | Begin  | End    | Homology   | ID       | Species                           | Score | I%  |
|--------|--------|--------|--|----------|-----------------------------------|-------|-----|
| ORF763 | 813587 | 815023 | gylA   | X92503   | <i>Mycobacterium smegmatis</i>    | 414   | 55  |
| ORF764 | 815420 | 815746 | putative   |          |                                   |       |     |
| ORF765 | 816036 | 817010 | orf-X; hypothetical protein; Method:<br>conceptual translation supplied by author  | U48870   | <i>Bacillus subtilis</i>          | 569   | 47  |
| ORF766 | 817111 | 817356 | unknown  | Z74024   | <i>Mycobacterium tuberculosis</i> | 114   | 34  |
| ORF767 | 817791 | 818609 | 3-deoxy-d-manno-octulosonic acid 8-<br>phosphate synthetase  | Z50747   | <i>Chlamydia psittaci</i>         | 1112  | 78  |
| ORF768 | 818609 | 819094 | protein of unknown function  | Z50747   | <i>Chlamydia psittaci</i>         | 545   | 65  |
| ORF769 | 819104 | 819823 | ATP binding protein  | U72493   | <i>Chlamydia trachomatis</i>      | 1099  | 88  |
| ORF770 | 820722 | 819826 | putative   |          |                                   |       |     |
| ORF771 | 822313 | 821000 | putative   |          |                                   |       |     |
| ORF772 | 823503 | 822238 | putative   |          |                                   |       |     |
| ORF773 | 823678 | 825612 | putative   |          |                                   |       |     |
| ORF774 | 825461 | 826312 | putative   |          |                                   |       |     |
| ORF775 | 827280 | 826645 | putative   |          |                                   |       |     |
| ORF776 | 828604 | 827171 | 76 kDa protein   | L23921   | <i>Chlamydia pneumoniae</i>       | 2179  | 100 |
| ORF777 | 830026 | 828713 | 76 kDa protein   | L23921   | <i>Chlamydia pneumoniae</i>       | 1162  | 100 |
| ORF778 | 831047 | 830085 | mviB homolog   | U50732   | <i>Chlamydia trachomatis</i>      | 982   | 58  |
| ORF779 | 831725 | 831051 | mviB homolog   | U50732   | <i>Chlamydia trachomatis</i>      | 740   | 65  |
| ORF780 | 832220 | 833098 | T05H10.2   | Z47812   | <i>Caenorhabditis elegans</i>     | 407   | 34  |
| ORF781 | 833851 | 833396 | ribosomal protein S4 (rps4)  | AE000633 | <i>Helicobacter pylori</i>        | 372   | 53  |
| ORF782 | 834068 | 835039 | This ORF is homologous to a 40.0 kd<br>hypothetical protein in the htrB 3' region<br>from E. coli. Accession Number X61000 | L22217   | <i>Mycoplasma-like organism</i>   | 377   | 49  |
| ORF783 | 835792 | 835127 | uridine kinase   | L31783   | <i>Mus musculus</i>               | 436   | 43  |
| ORF784 | 837624 | 836116 | ORF f397   | U29581   | <i>Escherichia coli</i>           | 92    | 38  |
| ORF785 | 838951 | 840882 | putative   |          |                                   |       |     |
| ORF786 | 840869 | 842185 | exodeoxyribonuclease V (recB)  | U32811   | <i>Haemophilus influenzae</i>     | 409   | 40  |
| ORF787 | 841989 | 843455 | DNA helicase II  | U39703   | <i>Mycoplasma genitalium</i>      | 110   | 46  |
| ORF788 | 843242 | 844021 | exodeoxyribonuclease V (recB)  | U32811   | <i>Haemophilus influenzae</i>     | 196   | 40  |
| ORF789 | 845018 | 843987 | MreC protein   | M31792   | <i>Escherichia coli</i>           | 76    | 53  |
| ORF790 | 846174 | 844990 | aspartate aminotransferase (aspC)  | X03629   | <i>Escherichia coli</i>           | 754   | 40  |
| ORF791 | 848509 | 846311 | GreA   | U02878   | <i>Rickettsia prowazekii</i>      | 190   | 35  |



| ORF    | Begin  | End    | Homology   | ID       | Species                         | Score | I% |
|--------|--------|--------|--|----------|---------------------------------|-------|----|
| ORF792 | 848568 | 849014 | putative   |          |                                 |       |    |
| ORF793 | 849082 | 850488 | NADH:ubiquinone oxidoreductase subunit A (GP:Z37111 2)   | U32702   | <i>Haemophilus influenzae</i>   | 445   | 37 |
| ORF794 | 851512 | 850574 | porphobilinogen synthase   | U38348   | <i>Chlorobium vibrioforme</i>   | 769   | 45 |
| ORF795 | 852064 | 852447 | putative   |          |                                 |       |    |
| ORF796 | 852398 | 853690 | putative   |          |                                 |       |    |
| ORF797 | 855118 | 854243 | geranylgeranyl pyrophosphate synthase  | D85029   | <i>Arabidopsis thaliana</i>     | 408   | 41 |
| ORF798 | 855751 | 855128 | f147; This 147 aa orf is 26 pct identical (1 gaps) to 99 residues of an approx. 728 aa protein E2BE_RABIT SW: P47823 | AE000143 | <i>Escherichia coli</i>         | 187   | 36 |
| ORF799 | 856551 | 855829 | membrane associated regulatory protein   | M28368   | <i>Salmonella typhimurium</i>   | 172   | 36 |
| ORF800 | 856730 | 858556 | unknown function   | Z32530   | <i>Chlamydia trachomatis</i>    | 842   | 35 |
| ORF801 | 858717 | 859601 | exodeoxyribonuclease V (recD)  | U32811   | <i>Haemophilus influenzae</i>   | 182   | 51 |
| ORF802 | 859591 | 860205 | exonuclease V alpha subunit (AA 1-608)   | X04582   | <i>Escherichia coli</i>         | 235   | 45 |
| ORF803 | 861132 | 860284 | putative   |          |                                 |       |    |
| ORF804 | 861426 | 861163 | 30S ribosomal protein S20  | Z67753   | <i>Odontella sinensis</i>       | 153   | 41 |
| ORF805 | 861701 | 862921 | putative   |          |                                 |       |    |
| ORF806 | 863026 | 864798 | major sigma factor   | U04442   | <i>Chlamydia psittaci</i>       | 2661  | 94 |
| ORF807 | 864831 | 865256 | putative   |          |                                 |       |    |
| ORF808 | 865226 | 866581 | dihydropterin pyrophosphokinase /dihydropteroate synthase  | Y08611   | <i>Pisum sativum</i>            | 455   | 48 |
| ORF809 | 866562 | 867119 | dehydrofolate reductase, type I (folA)   | U32772   | <i>Haemophilus influenzae</i>   | 213   | 49 |
| ORF810 | 867025 | 867816 | M. jannaschii predicted coding region  | U67522   | <i>Methanococcus jannaschii</i> | 207   | 36 |
| ORF811 | 867820 | 868497 | MJ0768   |          |                                 |       |    |
| ORF812 | 869743 | 868661 | putative   |          |                                 |       |    |
| ORF813 | 870633 | 870094 | RecA   | U16739   | <i>Chlamydia trachomatis</i>    | 1512  | 87 |
| ORF814 | 871929 | 870646 | unknown function   | Z32530   | <i>Chlamydia trachomatis</i>    | 308   | 45 |
| ORF815 | 872538 | 872086 | unknown function   | Z32530   | <i>Chlamydia trachomatis</i>    | 1410  | 63 |
| ORF816 | 873908 | 872517 | putative   |          |                                 |       |    |
| ORF817 | 874281 | 874670 | nifR3-like gene product  | Z37984   | <i>Azospirillum brasilense</i>  | 181   | 32 |
| ORF818 | 874582 | 875286 | ORF1 gene product  | X62399   | <i>Escherichia coli</i>         | 307   | 42 |
| ORF819 | 877857 | 875377 | DNA topoisomerase I  | L27797   | <i>Bacillus subtilis</i>        | 1488  | 50 |

| ORF    | Begin  | End    | Homology   | ID     | Species                       | Score | I% |
|--------|--------|--------|--|--------|-------------------------------|-------|----|
| ORF820 | 878446 | 879255 | putative   |        |                               |       |    |
| ORF821 | 880635 | 879268 | sigma factor (ntrA) (AA 1-502)   | X05888 | <i>Azotobacter vinelandii</i> | 257   | 47 |
| ORF822 | 882524 | 880593 | DNA helicase II  | D90906 | <i>Synechocystis</i> sp.      | 1140  | 50 |
| ORF823 | 882612 | 883319 | ipa-57d gene product   | X73124 | <i>Bacillus subtilis</i>      | 601   | 51 |
| ORF824 | 884155 | 883538 | hypothetical protein   | D90915 | <i>Synechocystis</i> sp.      | 344   | 39 |
| ORF825 | 884340 | 885611 | 19/20 residue stretch (32-51) identical to N-terminal putative signal sequence of unknown, partly cloned <i>B. subtilis</i> gene.; | L19954 | <i>Bacillus subtilis</i>      | 456   | 37 |
| ORF826 | 885722 | 887302 | mutative<br>heat shock protein   | L12004 | <i>Chlamydia trachomatis</i>  | 915   | 39 |
| ORF827 | 887587 | 888153 | bas1 protein   | Z34917 | <i>Hordeum vulgare</i>        | 474   | 50 |
| ORF828 | 888627 | 888220 | putative   |        |                               |       |    |
| ORF829 | 889330 | 888716 | hypothetical protein   | Y14079 | <i>Bacillus subtilis</i>      | 223   | 55 |
| ORF830 | 889898 | 889323 | peptidoglycan-associated lipoprotein   | X65796 | <i>Escherichia coli</i>       | 222   | 50 |
| ORF831 | 891190 | 889898 | TolB   | U32470 | <i>Haemophilus influenzae</i> | 280   | 35 |
| ORF832 | 891828 | 891247 | putative   |        |                               |       |    |
| ORF833 | 892421 | 892017 | exbD peptide   | M28819 | <i>Escherichia coli</i>       | 77    | 48 |
| ORF834 | 893116 | 892421 | inner membrane protein (tolQ)  | U32722 | <i>Haemophilus influenzae</i> | 157   | 54 |
| ORF835 | 892521 | 892925 | putative   |        |                               |       |    |
| ORF836 | 893392 | 895419 | inner membrane copper tolerance protein  | Z36905 | <i>Escherichia coli</i>       | 120   | 35 |
| ORF837 | 895745 | 896527 | unknown  | D26185 | <i>Bacillus subtilis</i>      | 381   | 41 |
| ORF838 | 896668 | 897558 | succinate dehydrogenase subunit C  | Y08563 | <i>Paenibacillus macerans</i> | 253   | 40 |
| ORF839 | 897565 | 899442 | succinate dehydrogenase subunit A  | Y08563 | <i>Paenibacillus macerans</i> | 1667  | 57 |
| ORF840 | 899420 | 900229 | succinate dehydrogenase subunit B  | Y08563 | <i>Paenibacillus macerans</i> | 656   | 54 |
| ORF841 | 903230 | 900237 | putative   |        |                               |       |    |
| ORF842 | 905081 | 903234 | putative   |        |                               |       |    |
| ORF843 | 906931 | 905045 | sigma factor SibG regulation protein RsbU  | D90905 | <i>Synechocystis</i> sp.      | 117   | 35 |
| ORF844 | 907248 | 907832 | putative   |        |                               |       |    |
| ORF845 | 907784 | 908128 | putative   |        |                               |       |    |
| ORF846 | 908132 | 908677 | putative   |        |                               |       |    |
| ORF847 | 908589 | 909320 | putative   |        |                               |       |    |
| ORF848 | 909405 | 911465 | putative   |        |                               |       |    |
| ORF849 | 911677 | 912360 | putative   |        |                               |       |    |

| ORF    | Begin  | End    | Homology                            | ID     | Species                       | Score | I% |
|--------|--------|--------|-------------------------------------|--------|-------------------------------|-------|----|
| ORF850 | 912303 | 912821 | putative                            |        |                               |       |    |
| ORF851 | 912937 | 913983 | putative                            |        |                               |       |    |
| ORF852 | 915128 | 914067 | putative                            |        |                               |       |    |
| ORF853 | 916658 | 915303 | enolase                             | L29475 | <i>Bacillus subtilis</i>      | 1036  | 60 |
| ORF854 | 915627 | 915376 | enolase                             | U43738 | <i>Mycoplasma pneumoniae</i>  | 226   | 65 |
| ORF855 | 917707 | 916853 | excinuclease ABC subunit B (uvrB)   | U32804 | <i>Haemophilus influenzae</i> | 724   | 46 |
| ORF856 | 918837 | 917722 | excinuclease ABC subunit B (uvrB)   | U32804 | <i>Haemophilus influenzae</i> | 1029  | 54 |
| ORF857 | 919868 | 918837 | tryptophanyl-tRNA synthetase (trpS) | U32746 | <i>Haemophilus influenzae</i> | 376   | 40 |
| ORF858 | 920434 | 919880 | putative                            |        |                               |       |    |
| ORF859 | 921187 | 920438 | ORF8                                | X82078 | <i>Chlamydia sp.</i>          | 164   | 50 |
| ORF860 | 921959 | 921195 | hypothetical protein                | X62475 | <i>Chlamydia psittaci</i>     | 511   | 44 |
| ORF861 | 923773 | 921995 | Threonyl tRNA Synthetase            | Z80360 | <i>Bacillus subtilis</i>      | 1476  | 44 |
| ORF862 | 922146 | 922415 | putative                            |        |                               |       |    |
| ORF863 | 923943 | 923674 | putative                            |        |                               |       |    |
| ORF864 | 924077 | 925006 | putative                            |        |                               |       |    |
| ORF865 | 925436 | 925083 | putative                            |        |                               |       |    |
| ORF866 | 926524 | 925349 | putative                            |        |                               |       |    |
| ORF867 | 927920 | 926433 | putative                            |        |                               |       |    |
| ORF868 | 928319 | 927951 | putative                            |        |                               |       |    |
| ORF869 | 928963 | 928334 | putative                            |        |                               |       |    |
| ORF870 | 929248 | 930987 | DNA mismatch repair protein (mutL)  | U32692 | <i>Haemophilus influenzae</i> | 585   | 40 |
| ORF871 | 930995 | 932059 | YqhT                                | D84432 | <i>Bacillus subtilis</i>      | 445   | 39 |
| ORF872 | 932121 | 933515 | putative                            |        |                               |       |    |
| ORF873 | 932881 | 932513 | putative                            |        |                               |       |    |
| ORF874 | 933485 | 935746 | pulD (ftg start codon)              | M32613 | <i>Klebsiella pneumoniae</i>  | 210   | 33 |
| ORF875 | 935724 | 937082 | epsE                                | M96172 | <i>Vibrio cholerae</i>        | 890   | 55 |
| ORF876 | 937229 | 938410 | PilG                                | U32588 | <i>Neisseria gonorrhoeae</i>  | 280   | 38 |
| ORF877 | 938281 | 938805 | putative                            |        |                               |       |    |
| ORF878 | 938809 | 939255 | putative                            |        |                               |       |    |
| ORF879 | 939165 | 939782 | putative                            |        |                               |       |    |
| ORF880 | 939760 | 940791 | putative                            |        |                               |       |    |
| ORF881 | 940822 | 941106 | putative                            |        |                               |       |    |
| ORF882 | 940977 | 941351 | putative                            |        |                               |       |    |

| ORF    | Begin  | End    | Homology  | ID       | Species                            | Score | I% |
|--------|--------|--------|---|----------|------------------------------------|-------|----|
| ORF883 | 942537 | 941623 | yscT  | L25667   | <i>Yersinia pseudotuberculosis</i> | 169   | 44 |
| ORF884 | 942784 | 942500 | yscS  | L25667   | <i>Yersinia pseudotuberculosis</i> | 173   | 42 |
| ORF885 | 943149 | 942799 | HcrR  | AE000107 | <i>Rhizobium sp. NGR234</i>        | 265   | 52 |
| ORF886 | 943799 | 943029 | pathogenicity protein   | M64094   | <i>Xanthomonas campestris</i>      | 252   | 41 |
| ORF887 | 944055 | 943732 | putative  | M74011   | <i>Yersinia enterocolitica</i>     | 112   | 33 |
| ORF888 | 944413 | 943994 | putative  |          |                                    |       |    |
| ORF889 | 945395 | 944556 | putative  |          |                                    |       |    |
| ORF890 | 945853 | 945389 | putative  |          |                                    |       |    |
| ORF891 | 946392 | 945751 | HcrJ  | U56662   | <i>Erwinia amylovora</i>           | 229   | 44 |
| ORF892 | 947410 | 948081 | putative  |          |                                    |       |    |
| ORF893 | 949871 | 948915 | ORF YOR196c   | Z75104   | <i>Saccharomyces cerevisiae</i>    | 702   | 44 |
| ORF894 | 951058 | 949868 | dihydrolipoamide dehydrogenase E3 subunit                                   | M57435   | <i>Bacillus subtilis</i>           | 745   | 39 |
| ORF895 | 951249 | 950959 | dihydrolipoamide acetyltransferase E3 subunit                               | M73535   | <i>Staphylococcus aureus</i>       | 166   | 49 |
| ORF896 | 951664 | 952134 | putative  |          |                                    |       |    |
| ORF897 | 952674 | 952165 | SNF   | X98455   | <i>Bacillus cereus</i>             | 229   | 47 |
| ORF898 | 953491 | 952589 | helicase  | U39680   | <i>Mycoplasma genitalium</i>       | 307   | 42 |
| ORF899 | 955324 | 953495 | F01G4.1   | Z68341   | <i>Caenorhabditis elegans</i>      | 133   | 57 |
| ORF900 | 955823 | 955281 | putative  |          |                                    |       |    |
| ORF901 | 957082 | 955847 | branched-chain amino acid carrier   | Z48676   | <i>Lactobacillus delbrueckii</i>   | 297   | 40 |
| ORF902 | 957902 | 957270 | endonuclease III  | U11289   | <i>Bacillus subtilis</i>           | 317   | 37 |
| ORF903 | 959231 | 957906 | homologous to E.coli 50K  | X62539   | <i>Bacillus subtilis</i>           | 805   | 45 |
| ORF904 | 959376 | 960284 | phosphatidylserine decarboxylase  | U72715   | <i>Chlamydia trachomatis</i>       | 776   | 51 |
| ORF905 | 960266 | 961669 | putative  |          |                                    |       |    |
| ORF906 | 961856 | 964765 | secretory component   | U06928   | <i>Caulobacter crescentus</i>      | 1812  | 55 |
| ORF907 | 966855 | 965395 | 28.2% of identity to the Escherichia coli GTP-binding protein Era; putative | L47648   | <i>Bacillus subtilis</i>           | 778   | 41 |
| ORF908 | 968204 | 966975 | poly(A) polymerase  | L47709   | <i>Bacillus subtilis</i>           | 383   | 41 |
| ORF909 | 968791 | 968237 | ClpX-like protein   | U18229   | <i>Bacillus subtilis</i>           | 340   | 39 |
| ORF910 | 969498 | 968731 | ATP-dependent protease ATPase subunit                                       | D64006   | <i>Synechocystis sp.</i>           | 846   | 66 |
| ORF911 | 969858 | 969511 | ClpP  | U16135   | <i>Synechococcus sp.</i>           | 257   | 54 |

| ORF    | Begin   | End     | Homology  | ID       | Species                                | Score | %  |
|--------|---------|---------|---|----------|--|-------|----|
| ORF912 | 970118  | 969762  | ATP-dependent clp protease proteolytic component (clpP)           | AE000591 | <i>Helicobacter pylori</i>             | 362   | 63 |
| ORF913 | 970593  | 970300  | putative  |          |  |       |    |
| ORF914 | 971261  | 970542  | putative  |          |  |       |    |
| ORF915 | 971680  | 971123  | putative  |          |  |       |    |
| ORF916 | 971876  | 975100  | SNF   | X98455   | <i>Bacillus cereus</i>                 | 778   | 49 |
| ORF917 | 975419  | 976516  | MrB protein   | M96343   | <i>Bacillus subtilis</i>               | 960   | 55 |
| ORF918 | 976584  | 978320  | phospho enol pyruvate carboxykinase                               | S56812   | <i>Chlorobium limicola</i>             | 1667  | 64 |
| ORF919 | 977680  | 977231  | putative  |          |  |       |    |
| ORF920 | 978399  | 980738  | putative  |          |  |       |    |
| ORF921 | 980756  | 981928  | putative  |          |  |       |    |
| ORF922 | 982974  | 981931  | precursor protein (AA -22 to 371)                                 | X52557   | <i>Chlamydia trachomatis</i>           | 97    | 50 |
| ORF923 | 984120  | 983119  | NAD+ dependent glycerol-3-phosphate dehydrogenase                 | L47648   | <i>Bacillus subtilis</i>               | 618   | 43 |
| ORF924 | 985502  | 984120  | AgX-1 antigen [human, infertile patient, testis, Peptide, 505 aa] | S73498   | <i>Homo sapiens</i>                    | 254   | 34 |
| ORF925 | 987180  | 985882  | ORF 4   | M72718   | <i>Bacillus subtilis</i>               | 697   | 38 |
| ORF926 | 987172  | 987444  | putative  |          |  |       |    |
| ORF927 | 989846  | 989049  | nifU-like protein   | AE000542 | <i>Helicobacter pylori</i>             | 302   | 31 |
| ORF928 | 991048  | 989846  | putative  |          |  |       |    |
| ORF929 | 991638  | 990955  | phosphoglyceromutase  | L09651   | <i>Zymomonas mobilis</i>               | 471   | 53 |
| ORF930 | 991794  | 992498  | ORFX13  | L09228   | <i>Bacillus subtilis</i>               | 403   | 39 |
| ORF931 | 993619  | 993041  | biotin [acetyl-CoA-carboxylase] ligase                            | L47709   | <i>Bacillus subtilis</i>               | 136   | 38 |
| ORF932 | 993530  | 994792  | rod-shape-determining protein                                     | M22857   | <i>Escherichia coli</i>                | 312   | 44 |
| ORF933 | 995970  | 994795  | cadmium-transporting ATPase                                       | D64005   | <i>Synechocystis sp.</i>               | 358   | 47 |
| ORF934 | 996857  | 995739  | ATPase  | L28104   | <i>Transposon Tn5422</i>               | 449   | 39 |
| ORF935 | 997603  | 996782  | putative  |          |  |       |    |
| ORF936 | 998969  | 997572  | seryl-tRNA synthetase   | Y09924   | <i>Staphylococcus aureus</i>           | 851   | 42 |
| ORF937 | 998896  | 1000023 | orf2, homologue to B.subtilis ribG                                | X64395   | <i>Escherichia coli</i>                | 596   | 40 |
| ORF938 | 1000087 | 1001340 | GTP cyclohydrolase II   | D90912   | <i>Synechocystis sp.</i>               | 1078  | 52 |
| ORF939 | 1001357 | 1001818 | riboflavin synthase beta subunit                                  | U27202   | <i>Actinobacillus pleuropneumoniae</i> | 278   | 36 |
| ORF940 | 1003288 | 1001873 | putative  |          |  |       |    |
| ORF941 | 1003487 | 1004146 | putative  |          |  |       |    |

| ORF    | Begin   | End     | Homology  | ID       | Species                           | Score | I% |
|--------|---------|---------|---|----------|-----------------------------------|-------|----|
| ORF942 | 1004485 | 1005639 | D-alanine glycine permease (dagA)                 | AE000603 | <i>Helicobacter pylori</i>        | 394   | 33 |
| ORF943 | 1005643 | 1005972 | hypothetical protein MTCY180.08                   | Z97193   | <i>Mycobacterium tuberculosis</i> | 274   | 58 |
| ORF944 | 1006784 | 1006116 | similar to trithorax protein in final three exons | U13875   | <i>Caenorhabditis elegans</i>     | 155   | 46 |
| ORF945 | 1007563 | 1006769 | yycJ  | D78193   | <i>Bacillus subtilis</i>          | 406   | 38 |
| ORF946 | 1009226 | 1007568 | YtpT  | AF008220 | <i>Bacillus subtilis</i>          | 992   | 47 |
| ORF947 | 1009989 | 1009336 | putative  |          |                                   |       |    |
| ORF948 | 1015852 | 1016337 | putative  |          |                                   |       |    |
| ORF949 | 1016561 | 1016181 | putative  |          |                                   |       |    |
| ORF950 | 1016297 | 1017532 | putative  |          |                                   |       |    |
| ORF951 | 1016802 | 1016452 | putative  |          |                                   |       |    |
| ORF952 | 1018993 | 1017701 | phenolhydroxylase component                       | U32702   | <i>Haemophilus influenzae</i>     | 909   | 47 |
| ORF953 | 1019454 | 1019137 | ORF   | M63939   | <i>Escherichia coli</i>           | 96    | 45 |
| ORF954 | 1020764 | 1019562 | pCTHom1 gene product                              | M94254   | <i>Chlamydia trachomatis</i>      | 1185  | 65 |
| ORF955 | 1021405 | 1021037 | histone H1-like protein                           | M80324   | <i>Chlamydia psittaci</i>         | 319   | 62 |
| ORF956 | 1021821 | 1024286 | phosphoprotein                                    | L25078   | <i>Chlamydia trachomatis</i>      | 739   | 41 |
| ORF957 | 1024697 | 1024248 | putative  |          |                                   |       |    |
| ORF958 | 1025569 | 1024508 | protoporphyrinogen oxidase                        | U25114   | <i>Mus musculus</i>               | 86    | 38 |
| ORF959 | 1026969 | 1025590 | oxygen independent coprophorphyrogen III oxidase  | D90912   | <i>Synechocystis sp.</i>          | 880   | 42 |
| ORF960 | 1027789 | 1026947 | uroporphyrinogen decarboxylase                    | M97208   | <i>Bacillus subtilis</i>          | 372   | 38 |
| ORF961 | 1031199 | 1027945 | transcription-repair coupling factor (trcF)       | U32805   | <i>Haemophilus influenzae</i>     | 1584  | 42 |
| ORF962 | 1031717 | 1031172 | alanyl-tRNA synthetase                            | X95571   | <i>Thiobacillus ferrooxidans</i>  | 76    | 31 |
| ORF963 | 1033057 | 1031612 | alanyl-tRNA synthetase                            | AE000353 | <i>Escherichia coli</i>           | 889   | 40 |
| ORF964 | 1033425 | 1033039 | alanyl-tRNA synthetase (alaS)                     | AE000629 | <i>Helicobacter pylori</i>        | 327   | 51 |
| ORF965 | 1033784 | 1033200 | alanyl-tRNA synthetase                            | X59956   | <i>Rhizobium leguminosarum</i>    | 416   | 47 |
| ORF966 | 1033963 | 1036038 | transketolase                                     | Z73234   | <i>Bacillus subtilis</i>          | 1398  | 44 |
| ORF967 | 1036945 | 1036010 | AMP nucleosidase                                  | AE000290 | <i>Escherichia coli</i>           | 265   | 42 |
| ORF968 | 1037110 | 1037679 | elongation factor P                               | U14003   | <i>Escherichia coli</i>           | 458   | 51 |
| ORF969 | 1037696 | 1037944 | putative  |          |                                   |       |    |
| ORF970 | 1038916 | 1037975 | putative  |          |                                   |       |    |
| ORF971 | 1040582 | 1039026 | HSP60 chaperonin                                  | X62914   | <i>Clostridium perfringens</i>    | 284   | 31 |

| ORF    | Begin   | End     | Homology  | ID       | Species                           | Score | I% |
|--------|---------|---------|---|----------|-----------------------------------|-------|----|
| ORF972 | 1040997 | 1042337 | PROBABLE UDP-N-ACETYLMURAMOYLALANYL-D-GLUTAMYL-2, 6-DIAMINOLIGASE (EC 6.3.2.15)   | AB001488 | <i>Bacillus subtilis</i>          | 446   | 39 |
| ORF973 | 1042357 | 1043403 | ORF-Y (AA 1-360)  | X51584   | <i>Escherichia coli</i>           | 582   | 45 |
| ORF974 | 1043367 | 1044623 | UDP-N-acetylmuramoylalanine-D-glutamate ligase (murD)                             | U32793   | <i>Haemophilus influenzae</i>     | 348   | 42 |
| ORF975 | 1044607 | 1045362 | hypothetical protein  | Y14079   | <i>Bacillus subtilis</i>          | 115   | 38 |
| ORF976 | 1045384 | 1046538 | spoVE gene product (AA 1-366)   | X51419   | <i>Bacillus subtilis</i>          | 479   | 35 |
| ORF977 | 1046447 | 1047517 | mur   | Y13922   | <i>Enterococcus hirae</i>         | 256   | 45 |
| ORF978 | 1047521 | 1049956 | UDP-N-acetylmuramate-alanine ligase (murC)  | U32794   | <i>Haemophilus influenzae</i>     | 756   | 38 |
| ORF979 | 1050611 | 1050036 | unknown   | Z74024   | <i>Mycobacterium tuberculosis</i> | 78    | 44 |
| ORF980 | 1050925 | 1050566 | cycY gene product   | U14003   | <i>Escherichia coli</i>           | 179   | 34 |
| ORF981 | 1051728 | 1051090 | putative  |          |                                   |       |    |
| ORF982 | 1051743 | 1052063 | hypothetical protein  | D90908   | <i>Synechocystis sp.</i>          | 135   | 33 |
| ORF983 | 1052101 | 1053126 | trna delta(2)-isopentenylpyrophosphate transferase                                | Z98209   | <i>Mycobacterium tuberculosis</i> | 441   | 37 |
| ORF984 | 1054201 | 1053107 | conserved hypothetical protein  | AE000579 | <i>Helicobacter pylori</i>        | 826   | 44 |
| ORF985 | 1054242 | 1055555 | putative  |          |                                   |       |    |
| ORF986 | 1055483 | 1055908 | putative  |          |                                   |       |    |
| ORF987 | 1056609 | 1056965 | YqeL  | D84432   | <i>Bacillus subtilis</i>          | 202   | 38 |
| ORF988 | 1056961 | 1058232 | beta-ketoacyl-ACP synthase  | L13242   | <i>Ricinus communis</i>           | 1266  | 55 |
| ORF989 | 1058238 | 1058687 | diadenosine tetraphosphatase  | U30313   | <i>Homo sapiens</i>               | 122   | 42 |
| ORF990 | 1059371 | 1058727 | inorganic pyrophosphatase (ppa)   | AE000576 | <i>Helicobacter pylori</i>        | 209   | 39 |
| ORF991 | 1059526 | 1060578 | leucine dehydrogenase LeuDh   | U51099   | <i>Bacillus cereus</i>            | 680   | 45 |
| ORF992 | 1061553 | 1060579 | 3'(2'), 5'-bisphosphate nucleotidase  | U40433   | <i>Arabidopsis thaliana</i>       | 335   | 43 |
| ORF993 | 1061674 | 1062411 | putative  |          |                                   |       |    |
| ORF994 | 1062377 | 1064077 | 2-acylglycerophosphoethanolamine acyl transferase/acyl carrier protein synthetase | U29581   | <i>Escherichia coli</i>           | 383   | 44 |
| ORF995 | 1064116 | 1065243 | 7-keto-8-aminopelargonic acid synthetase (bioF)                                   | M29291   | <i>Bacillus sphaericus</i>        | 200   | 35 |
| ORF996 | 1067451 | 1065178 | priA  | Y10304   | <i>Bacillus subtilis</i>          | 1009  | 43 |

| ORF     | Begin   | End     | Homology   | ID       | Species                           | Score | I% |
|---------|---------|---------|--|----------|-----------------------------------|-------|----|
| ORF997  | 1068065 | 1067376 | putative   |          |                                   |       |    |
| ORF998  | 1068209 | 1068706 | putative   |          |                                   |       |    |
| ORF999  | 1069958 | 1068819 | unknown  | U41759   | <i>Chlamydia psittaci</i>         | 777   | 41 |
| ORF1000 | 1071163 | 1070033 | unknown  | U41759   | <i>Chlamydia psittaci</i>         | 381   | 36 |
| ORF1001 | 1072438 | 1071332 | unknown  | U41759   | <i>Chlamydia psittaci</i>         | 254   | 37 |
| ORF1002 | 1072997 | 1073476 | putative   |          |                                   |       |    |
| ORF1003 | 1074239 | 1075864 | lysyl-tRNA synthetase                              | D90906   | <i>Synechocystis sp.</i>          | 1007  | 48 |
| ORF1004 | 1076790 | 1075867 | cysteinyI-tRNA synthetase                          | L14580   | <i>Bacillus subtilis</i>          | 395   | 52 |
| ORF1005 | 1077268 | 1076573 | cys-tRNA synthetase (cysS)                         | U32693   | <i>Haemophilus influenzae</i>     | 431   | 56 |
| ORF1006 | 1077999 | 1078724 | putative   |          |                                   |       |    |
| ORF1007 | 1079088 | 1078672 | ribonuclease P protein component (gtg start codon) | M11056   | <i>Escherichia coli</i>           | 78    | 46 |
| ORF1008 | 1079642 | 1079944 | 30S ribosomal subunit protein S14                  | U18997   | <i>Escherichia coli</i>           | 260   | 50 |
| ORF1009 | 1080501 | 1079995 | F18C12.2   | Z75536   | <i>Caenorhabditis elegans</i>     | 118   | 38 |
| ORF1010 | 1080775 | 1081341 | putative   |          |                                   |       |    |
| ORF1011 | 1083158 | 1081350 | deoxyribodipyrimidine photolyase                   | J03294   | <i>Bacillus subtilis</i>          | 687   | 44 |
| ORF1012 | 1084677 | 1083235 | DNA mismatch repair protein                        | U71154   | <i>Aquifex pyrophilus</i>         | 735   | 48 |
| ORF1013 | 1085648 | 1084632 | DNA mismatch repair protein                        | D90909   | <i>Synechocystis sp.</i>          | 565   | 39 |
| ORF1014 | 1086117 | 1086737 | DNA primase (dnaG)                                 | U32735   | <i>Haemophilus influenzae</i>     | 303   | 40 |
| ORF1015 | 1086692 | 1087897 | DnaG   | Z83860   | <i>Mycobacterium tuberculosis</i> | 222   | 37 |
| ORF1016 | 1088646 | 1089005 | putative   |          |                                   |       |    |
| ORF1017 | 1089146 | 1089805 | putative   |          |                                   |       |    |
| ORF1018 | 1092931 | 1089890 | glycyl-tRNA synthetase                             | U20547   | <i>Chlamydia trachomatis</i>      | 2569  | 48 |
| ORF1019 | 1093179 | 1092889 | putative   |          |                                   |       |    |
| ORF1020 | 1093584 | 1094204 | phosphatidylglycerophosphate synthase              | U87792   | <i>Bacillus subtilis</i>          | 163   | 55 |
| ORF1021 | 1093619 | 1094192 | glycogen (starch) synthase                         | D90899   | <i>Synechocystis sp.</i>          | 574   | 40 |
| ORF1022 | 1096074 | 1096628 | partial ctc gene product (AA 1-186)                | X16518   | <i>Bacillus subtilis</i>          | 86    | 37 |
| ORF1023 | 1096633 | 1097082 | peptidyl-tRNA hydrolase                            | U31570   | <i>Chlamydia trachomatis</i>      | 378   | 53 |
| ORF1024 | 1097266 | 1097601 | ribosomal protein S6 (rps6)                        | AE000630 | <i>Helicobacter pylori</i>        | 179   | 39 |
| ORF1025 | 1097622 | 1097867 | ribosomal protein S18 homolog; putative            | M62820   | <i>Chlamydia trachomatis</i>      | 324   | 86 |
| ORF1026 | 1097886 | 1098392 | putative heat shock protein ORF; putative          | M62820   | <i>Chlamydia trachomatis</i>      | 190   | 79 |
| ORF1027 | 1099521 | 1099279 | putative   |          |                                   |       |    |
| ORF1028 | 1099689 | 1101053 | putative   |          |                                   |       |    |



| ORF     | Begin   | End     | Homology   | ID       | Species                               | Score | I% |
|---------|---------|---------|--|----------|---------------------------------------|-------|----|
| ORF1029 | 1102192 | 1101107 | putative   |          |                                       |       |    |
| ORF1030 | 1104950 | 1102116 | glycerol-3-phosphate acyltransferase   | M80571   | <i>Cucumis sativus</i>                | 574   | 43 |
| ORF1031 | 1106508 | 1104946 | ORF_f495; orf of ECMRED, uses 2nd start  | U18997   | <i>Escherichia coli</i>               | 855   | 38 |
| ORF1032 | 1106722 | 1107249 | putative   |          |                                       |       |    |
| ORF1033 | 1107463 | 1108101 | PlsX   | U59433   | <i>Bacillus subtilis</i>              | 282   | 45 |
| ORF1034 | 1108041 | 1108421 | fatty acid/phospholipid synthesis protein (plsX)                               | AE000540 | <i>Helicobacter pylori</i>            | 205   | 35 |
| ORF1035 | 1108520 | 1113370 | putative 98 kDa outer membrane protein   | U72499   | <i>Chlamydia psittaci</i>             | 352   | 44 |
| ORF1036 | 1114958 | 1113447 | putative   |          |                                       |       |    |
| ORF1037 | 1116915 | 1115071 | lipid A disaccharide synthetase (lpxB)   | U32786   | <i>Haemophilus influenzae</i>         | 477   | 42 |
| ORF1038 | 1118183 | 1116894 | poly(A) polymerase   | AE000123 | <i>Escherichia coli</i>               | 555   | 46 |
| ORF1039 | 1118846 | 1120030 | putative   | L12968   | <i>Escherichia coli</i>               | 880   | 50 |
| ORF1040 | 1120040 | 1120522 | glucosamine fructose-6-phosphate aminotransferase (isomerizing) (glmS)         | AE000651 | <i>Helicobacter pylori</i>            | 396   | 52 |
| ORF1041 | 1120510 | 1121430 | glutamine amidotransferase; glucosamine--fructose-6-phosphate aminotransferase | AE000450 | <i>Escherichia coli</i>               | 494   | 44 |
| ORF1042 | 1121321 | 1121866 | L-glutamine:D-fructose-6-P   | U17352   | <i>Thermus aquaticus thermophilus</i> | 374   | 50 |
| ORF1043 | 1122123 | 1122899 | amidotransferase precursor   | AE000284 | <i>Escherichia coli</i>               | 281   | 41 |
| ORF1044 | 1124842 | 1125564 | tyrosine-specific transport protein  |          |                                       |       |    |
| ORF1045 | 1126526 | 1125579 | putative   |          |                                       |       |    |
| ORF1046 | 1126519 | 1127676 | cell division protein (ftsY)   | U32760   | <i>Haemophilus influenzae</i>         | 497   | 41 |
| ORF1047 | 1127672 | 1128571 | succinyl-CoA synthetase beta-subunit   | J01619   | <i>Escherichia coli</i>               | 784   | 43 |
|         |         |         | succinyl coenzyme A synthetase alpha subunit                                   | U23408   | <i>Dictyostelium discoideum</i>       | 978   | 63 |
| ORF1048 | 1130230 | 1131336 | putative   |          |                                       |       |    |
| ORF1049 | 1131480 | 1132553 | putative   |          |                                       |       |    |
| ORF1050 | 1132830 | 1133843 | putative   |          |                                       |       |    |
| ORF1051 | 1134121 | 1134855 | serine protease HtrA   | D90905   | <i>Synechocystis sp.</i>              | 307   | 51 |
| ORF1052 | 1134642 | 1135592 | GsrA protein   | D78376   | <i>Yersinia enterocolitica</i>        | 497   | 41 |
| ORF1053 | 1135964 | 1135653 | putative   |          |                                       |       |    |
| ORF1054 | 1137132 | 1135954 | R11H6.1  | Z93386   | <i>Caenorhabditis elegans</i>         | 445   | 37 |
| ORF1055 | 1137169 | 1140102 | Ydr430cp; CAI: 0.15  | U33007   | <i>Saccharomyces cerevisiae</i>       | 559   | 40 |

| ORF     | Begin   | End     | Homology   | ID       | Species                            | Score | I% |
|---------|---------|---------|--|----------|------------------------------------|-------|----|
| ORF1056 | 1141365 | 1140112 | hypothetical 54.7 kD protein in udp 3' region precursor (o475) | AE000459 | <i>Escherichia coli</i>            | 222   | 34 |
| ORF1057 | 1142150 | 1141356 | phosphatidylserine synthase (pssA)                             | AE000614 | <i>Helicobacter pylori</i>         | 307   | 41 |
| ORF1058 | 1142520 | 1145660 | ribonucleotide reductase subunit M1                            | K02927   | <i>Mus musculus</i>                | 1433  | 45 |
| ORF1059 | 1145627 | 1146721 | ribonucleoside diphosphate reductase, beta subunit (nrdB)      | AE000553 | <i>Helicobacter pylori</i>         | 443   | 32 |
| ORF1060 | 1146862 | 1147545 | unknown  | Z95398   | <i>Mycobacterium leprae</i>        | 191   | 35 |
| ORF1061 | 1147666 | 1148190 | YtqB   | AF008220 | <i>Bacillus subtilis</i>           | 262   | 44 |
| ORF1062 | 1148514 | 1148224 | ORF2   | U01958   | <i>Bacillus licheniformis</i>      | 135   | 54 |
| ORF1063 | 1149136 | 1148348 | ORF2   | M31827   | <i>Bacillus subtilis</i>           | 268   | 40 |
| ORF1064 | 1149702 | 1149166 | putative   |          |                                    |       |    |
| ORF1065 | 1150031 | 1150591 | unknown  | Z85982   | <i>Mycobacterium tuberculosis</i>  | 445   | 49 |
| ORF1066 | 1150785 | 1151147 | ribosomal protein L20 (AA 1-119)                               | X16188   | <i>Bacillus stearothermophilus</i> | 273   | 44 |
| ORF1067 | 1151165 | 1152181 | phenylalanyl-tRNA synthetase beta subunit                      | Z75208   | <i>Bacillus subtilis</i>           | 777   | 40 |
| ORF1068 | 1152522 | 1154591 | putative   |          |                                    |       |    |
| ORF1069 | 1155666 | 1154566 | putative   |          |                                    |       |    |
| ORF1070 | 1156743 | 1155670 | putative   |          |                                    |       |    |
| ORF1071 | 1156859 | 1157815 | hypothetical   | U32723   | <i>Haemophilus influenzae</i>      | 252   | 42 |
| ORF1072 | 1157982 | 1160735 | ATP-binding protein  | U01376   | <i>Escherichia coli</i>            | 1314  | 56 |
| ORF1073 | 1162620 | 1160917 | polynucleotide phosphorylase                                   | AF010578 | <i>Pisum sativum</i>               | 1416  | 52 |
| ORF1074 | 1162970 | 1162590 | polyribonucleotide phosphorylase                               | U52048   | <i>Spinacia oleracea</i>           | 312   | 53 |
| ORF1075 | 1163532 | 1164020 | orf150 gene product  | X95938   | <i>Porphyromonas gingivalis</i>    | 335   | 43 |
| ORF1076 | 1163995 | 1164294 | putative   |          |                                    |       |    |
| ORF1077 | 1165569 | 1165030 | putative   |          |                                    |       |    |
| ORF1078 | 1166108 | 1165566 | putative   |          |                                    |       |    |
| ORF1079 | 1166644 | 1166141 | putative   |          |                                    |       |    |
| ORF1080 | 1167055 | 1168374 | putative   |          |                                    |       |    |
| ORF1081 | 1169218 | 1168337 | methionine aminopeptidase                                      | D64003   | <i>Synechocystis sp.</i>           | 488   | 54 |
| ORF1082 | 1169823 | 1169218 | ORF o197   | U18997   | <i>Escherichia coli</i>            | 281   | 30 |
| ORF1083 | 1171324 | 1170572 | putative   |          |                                    |       |    |
| ORF1084 | 1172085 | 1171177 | hypothetical   | U32720   | <i>Haemophilus influenzae</i>      | 162   | 44 |
| ORF1085 | 1172394 | 1173773 | fumarase   | D64000   | <i>Synechocystis sp.</i>           | 1292  | 57 |
| ORF1086 | 1175209 | 1173881 | prs-associated putative membrane protein                       | U02424   | <i>Escherichia coli</i>            | 570   | 39 |

| ORF     | Begin   | End     | Homology   | ID       | Species                           | Score | I% |
|---------|---------|---------|--|----------|-----------------------------------|-------|----|
| ORF1087 | 1175555 | 1175127 | hypothetical protein in pth-prs intergenic region  | AE000219 | <i>Escherichia coli</i>           | 278   | 46 |
| ORF1088 | 1175778 | 1177043 | hypothetical protein   | Z96072   | <i>Mycobacterium tuberculosis</i> | 109   | 43 |
| ORF1089 | 1177177 | 1179048 | putative   |          |                                   |       |    |
| ORF1090 | 1179156 | 1180085 | penicillin tolerance protein (lytB)  | U32781   | <i>Haemophilus influenzae</i>     | 731   | 54 |
| ORF1091 | 1180045 | 1180779 | putative   |          |                                   |       |    |
| ORF1092 | 1181942 | 1180788 | putative   |          |                                   |       |    |
| ORF1093 | 1182296 | 1181961 | putative   |          |                                   |       |    |
| ORF1094 | 1183844 | 1182300 | putative   |          |                                   |       |    |
| ORF1095 | 1184420 | 1183848 | putative   |          |                                   |       |    |
| ORF1096 | 1185382 | 1184366 | putative   |          |                                   |       |    |
| ORF1097 | 1185858 | 1185226 | putative   |          |                                   |       |    |
| ORF1098 | 1186164 | 1186481 | putative   |          |                                   |       |    |
| ORF1099 | 1187386 | 1186484 | site-specific recombinase  | U92524   | <i>Salmonella typhimurium</i>     | 401   | 48 |
| ORF1100 | 1187370 | 1189028 | phosphoglucosyltransferase-like protein  | L40822   | <i>Chlamydia trachomatis</i>      | 1154  | 63 |
| ORF1101 | 1189321 | 1190889 | putative   |          |                                   |       |    |
| ORF1102 | 1191142 | 1192146 | NADP-malate dehydrogenase  | L40958   | <i>Flavobacterium</i>             | 775   | 46 |
| ORF1103 | 1191974 | 1191729 | putative   |          |                                   |       |    |
| ORF1104 | 1193815 | 1192991 | putative   |          |                                   |       |    |
| ORF1105 | 1195702 | 1194248 | o460; This 460 aa orf is 46 pct identical (26 gaps) to 458 residues of an approx. 488 aa protein ARCD PSEAE SW: P18275 | AE000256 | <i>Escherichia coli</i>           | 1022  | 44 |
| ORF1106 | 1196303 | 1195716 | putative   |          |                                   |       |    |
| ORF1107 | 1196831 | 1196337 | putative   |          |                                   |       |    |
| ORF1108 | 1197807 | 1196746 | putative   |          |                                   |       |    |
| ORF1109 | 1198740 | 1197883 | putative   |          |                                   |       |    |
| ORF1110 | 1200232 | 1198721 | shikimate 5-dehydrogenase  | U67551   | <i>Methanococcus jannaschii</i>   | 245   | 37 |
| ORF1111 | 1201286 | 1200135 | 3-dehydroquinate synthase (aroB)   | U32705   | <i>Haemophilus influenzae</i>     | 478   | 45 |
| ORF1112 | 1202386 | 1201259 | 2,3-dihydroxybenzoic acid  | L29562   | <i>Vibrio anguillarum</i>         | 780   | 50 |
| ORF1113 | 1202901 | 1202350 | putative   |          |                                   |       |    |
| ORF1114 | 1204162 | 1202816 | 5-enolpyruvylshikimate 3-phosphate synthase  | U67500   | <i>Methanococcus jannaschii</i>   | 520   | 40 |
| ORF1115 | 1203177 | 1203464 | putative   |          |                                   |       |    |

| ORF     | Begin   | End     | Homology                              | ID       | Species                                | Score | I% |
|---------|---------|---------|---------------------------------------|----------|--|-------|----|
| ORF1116 | 1205028 | 1204180 | putative                              |          |  |       |    |
| ORF1117 | 1206392 | 1204878 | bioA gene product                     | A02587   | unidentified                           | 834   | 48 |
| ORF1118 | 1206742 | 1206086 | dethiobiotin synthase (bioD)          | U32830   | <i>Haemophilus influenzae</i>          | 243   | 37 |
| ORF1119 | 1207872 | 1206724 | L-alanine - pimelyl CoA ligase        | U51868   | <i>Bacillus subtilis</i>               | 601   | 41 |
| ORF1120 | 1208852 | 1207851 | biotin synthase                       | U24147   | <i>Arabidopsis thaliana</i>            | 892   | 52 |
| ORF1121 | 1210518 | 1209742 | tryptophan hydroxylase                | U26428   | <i>Gallus gallus</i>                   | 237   | 34 |
| ORF1122 | 1210703 | 1211494 | dihydrodipicolinate reductase         | U47017   | <i>Pseudomonas syringae pv. tabaci</i> | 345   | 37 |
| ORF1123 | 1211870 | 1212754 | aspartate-semialdehyde dehydrogenase  | U67476   | <i>Methanococcus jannaschii</i>        | 444   | 43 |
| ORF1124 | 1212742 | 1214064 | aspartokinase III                     | U00006   | <i>Escherichia coli</i>                | 473   | 47 |
| ORF1125 | 1214046 | 1214858 | dihydrodipicolinate synthase          | D64006   | <i>Synechocystis sp.</i>               | 238   | 40 |
| ORF1126 | 1215551 | 1216318 | putative                              |          |  |       |    |
| ORF1127 | 1216493 | 1216849 | putative                              |          |  |       |    |
| ORF1128 | 1217183 | 1219612 | putative                              |          |  |       |    |
| ORF1129 | 1220068 | 1219673 | putative                              |          |  |       |    |
| ORF1130 | 1219710 | 1220669 | putative                              |          |  |       |    |
| ORF1131 | 1220630 | 1221376 | putative                              |          |  |       |    |
| ORF1132 | 1221645 | 1223681 | unknown                               | D26185   | <i>Bacillus subtilis</i>               | 621   | 43 |
| ORF1133 | 1223894 | 1224988 | putative                              |          |  |       |    |
| ORF1134 | 1225000 | 1225830 | high level kasamycin resistance       | D26185   | <i>Bacillus subtilis</i>               | 422   | 41 |
| ORF1135 | 1227810 | 1225879 | hypothetical protein                  | D90903   | <i>Synechocystis sp.</i>               | 1129  | 43 |
| ORF1136 | 1226528 | 1226908 | putative                              |          |  |       |    |
| ORF1137 | 1229972 | 1228311 | exonuclease VII, large subunit (xseA) | U32723   | <i>Haemophilus influenzae</i>          | 666   | 46 |
| ORF1138 | 47569   | 47018   | Integrase/recombinase                 | AE001308 | <i>Chlamydia trachomatis</i>           | 716   | 72 |
| ORF1139 | 49980   | 49117   | putative                              |          |  |       |    |
| ORF1140 | 53356   | 52898   | putative                              |          |  |       |    |
| ORF1141 | 54477   | 54884   | O-Sialoglycoprotein Endopeptidase     | AE001307 | <i>Chlamydia trachomatis</i>           | 311   | 51 |
| ORF1142 | 63753   | 63998   | PTS PEP Phosphotransferase            | AE001306 | <i>Chlamydia trachomatis</i>           | 198   | 61 |
| ORF1143 | 77164   | 77487   | putative                              |          |  |       |    |
| ORF1144 | 79724   | 79302   | Sms Protein                           | AE001302 | <i>Chlamydia trachomatis</i>           | 458   | 57 |
| ORF1145 | 88721   | 88951   | putative                              |          |  |       |    |
| ORF1146 | 94067   | 94429   | putative                              |          |  |       |    |
| ORF1147 | 122832  | 123341  | hypothetical protein                  | AE001303 | <i>Chlamydia trachomatis</i>           | 398   | 61 |
| ORF1148 | 147536  | 147234  | putative                              |          |  |       |    |

| ORF     | Begin  | End    | Homology                        | ID       | Species                      | Score | I% |
|---------|--------|--------|---------------------------------|----------|------------------------------|-------|----|
| ORF1149 | 158990 | 159346 | S16 Ribosomal Protein           | AE001277 | <i>Chlamydia trachomatis</i> | 467   | 78 |
| ORF1150 | 168470 | 168979 | putative                        |          |                              |       |    |
| ORF1151 | 169183 | 169452 | putative                        |          |                              |       |    |
| ORF1152 | 171785 | 171504 | Cationic Amino Acid Transporter | AE001278 | <i>Chlamydia trachomatis</i> | 262   | 68 |
| ORF1153 | 172518 | 171775 | Cationic Amino Acid Transporter | AE001278 | <i>Chlamydia trachomatis</i> | 533   | 48 |
| ORF1154 | 193599 | 194045 | putative                        |          |                              |       |    |
| ORF1155 | 195704 | 196075 | S/T Protein Kinase              | AE001288 | <i>Chlamydia trachomatis</i> | 536   | 82 |
| ORF1156 | 210687 | 210145 | KDO-transferase                 | X80061   | <i>Chlamydia pneumoniae</i>  | 856   | 96 |
| ORF1157 | 211100 | 210708 | putative                        |          |                              |       |    |
| ORF1158 | 215420 | 215088 | putative                        |          |                              |       |    |
| ORF1159 | 217914 | 218246 | putative                        |          |                              |       |    |
| ORF1160 | 218925 | 218701 | putative                        |          |                              |       |    |
| ORF1161 | 223785 | 223525 | IMP dehydrogenase               | U13372   | <i>Borrelia burgdorferi</i>  | 270   | 63 |
| ORF1162 | 224271 | 223999 | putative                        |          |                              |       |    |
| ORF1163 | 228691 | 228407 | putative                        |          |                              |       |    |
| ORF1164 | 235050 | 235334 | (Methylase)                     | AE001287 | <i>Chlamydia trachomatis</i> | 331   | 66 |
| ORF1165 | 252308 | 253021 | Oligopeptide Permease           | AE001293 | <i>Chlamydia trachomatis</i> | 838   | 72 |
| ORF1166 | 258280 | 258912 | Dicarboxylate Translocator      | AE001294 | <i>Chlamydia trachomatis</i> | 909   | 80 |
| ORF1167 | 261325 | 261567 | putative                        |          |                              |       |    |
| ORF1168 | 268195 | 268878 | hypothetical protein            | AE001287 | <i>Chlamydia trachomatis</i> | 556   | 52 |
| ORF1169 | 269447 | 268881 | putative                        |          |                              |       |    |
| ORF1170 | 271263 | 271538 | putative                        |          |                              |       |    |
| ORF1171 | 271957 | 272346 | putative                        |          |                              |       |    |
| ORF1172 | 274176 | 274550 | putative                        |          |                              |       |    |
| ORF1173 | 275736 | 275314 | Disulfide bond Oxidoreductase   | AE001291 | <i>Chlamydia trachomatis</i> | 519   | 73 |
| ORF1174 | 276490 | 276927 | hypothetical protein            | AE001291 | <i>Chlamydia trachomatis</i> | 249   | 53 |
| ORF1175 | 277577 | 277861 | hypothetical protein            | AE001291 | <i>Chlamydia trachomatis</i> | 256   | 52 |
| ORF1176 | 288163 | 287909 | putative                        |          |                              |       |    |
| ORF1177 | 290130 | 289789 | putative                        |          |                              |       |    |
| ORF1178 | 290989 | 291225 | putative                        |          |                              |       |    |
| ORF1179 | 291372 | 291860 | adenylate cyclase               | AE001286 | <i>Chlamydia trachomatis</i> | 388   | 48 |
| ORF1180 | 311239 | 311622 | putative                        |          |                              |       |    |
| ORF1181 | 328665 | 328384 | putative                        |          |                              |       |    |

| ORF     | Begin  | End    | Homology                                  | ID       | Species                      | Score | I% |
|---------|--------|--------|---|----------|------------------------------|-------|----|
| ORF1182 | 337348 | 338289 | sodium-dependent transporter              | AF017105 | <i>Chlamydia psittaci</i>    | 1112  | 72 |
| ORF1183 | 364764 | 364369 | Prolipoprotein Diacylglycerol Transferase | AE001298 | <i>Chlamydia trachomatis</i> | 300   | 54 |
| ORF1184 | 389623 | 390135 | hypothetical protein                      | AE001282 | <i>Chlamydia trachomatis</i> | 75    | 33 |
| ORF1185 | 393729 | 394343 | ABC superfamily ATPase                    | AE001282 | <i>Chlamydia trachomatis</i> | 473   | 52 |
| ORF1186 | 407379 | 407621 | putative                                  |          |                              |       |    |
| ORF1187 | 410944 | 410708 | putative                                  |          |                              |       |    |
| ORF1188 | 427632 | 427988 | putative                                  |          |                              |       |    |
| ORF1189 | 428172 | 428486 | putative                                  |          |                              |       |    |
| ORF1190 | 436761 | 437246 | hypothetical protein                      | AE001279 | <i>Chlamydia trachomatis</i> | 661   | 81 |
| ORF1191 | 460911 | 461159 | putative                                  |          |                              |       |    |
| ORF1192 | 477597 | 477313 | hypothetical protein                      | AE001300 | <i>Chlamydia trachomatis</i> | 309   | 62 |
| ORF1193 | 487303 | 487001 | putative                                  |          |                              |       |    |
| ORF1194 | 487764 | 487534 | Glycine Cleavage System H Protein         | AE001300 | <i>Chlamydia trachomatis</i> | 221   | 67 |
| ORF1195 | 498502 | 499017 | hypothetical protein                      | AE001275 | <i>Chlamydia trachomatis</i> | 206   | 32 |
| ORF1196 | 499795 | 500466 | putative                                  |          |                              |       |    |
| ORF1197 | 571928 | 572344 | putative                                  |          |                              |       |    |
| ORF1198 | 572367 | 572131 | putative                                  |          |                              |       |    |
| ORF1199 | 588184 | 587915 | hypothetical protein                      | AE001312 | <i>Chlamydia trachomatis</i> | 256   | 62 |
| ORF1200 | 600587 | 600907 | (Metalloenzyme)                           | AE001316 | <i>Chlamydia trachomatis</i> | 314   | 61 |
| ORF1201 | 609731 | 608895 | putative                                  |          |                              |       |    |
| ORF1202 | 614039 | 614755 | hypothetical protein                      | AE001317 | <i>Chlamydia trachomatis</i> | 475   | 46 |
| ORF1203 | 614823 | 615152 | putative                                  |          |                              |       |    |
| ORF1204 | 638244 | 638831 | ABC Transporter ATPase                    | AE001315 | <i>Chlamydia trachomatis</i> | 614   | 61 |
| ORF1205 | 638819 | 639094 | (Metal Transport Protein)                 | AE001315 | <i>Chlamydia trachomatis</i> | 265   | 63 |
| ORF1206 | 639073 | 639636 | (Metal Transport Protein)                 | AE001315 | <i>Chlamydia trachomatis</i> | 687   | 69 |
| ORF1207 | 647901 | 648236 | hypothetical protein                      | AE001317 | <i>Chlamydia trachomatis</i> | 139   | 38 |
| ORF1208 | 678510 | 679469 | phosphohydrolase                          | AE001320 | <i>Chlamydia trachomatis</i> | 995   | 63 |
| ORF1209 | 688178 | 688732 | hypothetical protein                      | AE001320 | <i>Chlamydia trachomatis</i> | 366   | 43 |
| ORF1210 | 696045 | 696563 | methyltransferase                         | AE001321 | <i>Chlamydia trachomatis</i> | 369   | 49 |
| ORF1211 | 708998 | 708588 | Glucose-1-P Adenyltransferase             | AE001322 | <i>Chlamydia trachomatis</i> | 507   | 83 |
| ORF1212 | 709808 | 710089 | putative                                  |          |                              |       |    |
| ORF1213 | 718240 | 717737 | Glycerol-3-P Phosphatidyltransferase      | AE001323 | <i>Chlamydia trachomatis</i> | 573   | 66 |
| ORF1214 | 737828 | 737565 | S19 Ribosomal Protein                     | AE001323 | <i>Chlamydia trachomatis</i> | 439   | 94 |

| ORF     | Begin   | End     | Homology                           | ID       | Species                      | Score | I% |
|---------|---------|---------|------------------------------------|----------|------------------------------|-------|----|
| ORF1215 | 779502  | 780257  | hypothetical protein               | AE001322 | <i>Chlamydia trachomatis</i> | 476   | 48 |
| ORF1216 | 806310  | 805864  | hypothetical protein               | AE001337 | <i>Chlamydia trachomatis</i> | 512   | 67 |
| ORF1217 | 820931  | 820707  | putative                           | AE001334 | <i>Chlamydia trachomatis</i> | 967   | 49 |
| ORF1218 | 837696  | 839096  | Exodeoxyribonuclease V, Gamma      |          |                              |       |    |
| ORF1219 | 883307  | 883549  | putative                           |          |                              |       |    |
| ORF1220 | 892010  | 891726  | putative                           |          |                              |       |    |
| ORF1221 | 893277  | 893564  | putative                           |          |                              |       |    |
| ORF1222 | 936998  | 937225  | Gen. Secretion Protein E           | AE001327 | <i>Chlamydia trachomatis</i> | 256   | 67 |
| ORF1223 | 946865  | 947419  | putative                           |          |                              |       |    |
| ORF1224 | 975187  | 975411  | SWF/SNF family helicase            | AE001341 | <i>Chlamydia trachomatis</i> | 363   | 96 |
| ORF1225 | 985882  | 985517  | hypothetical protein               | AE001342 | <i>Chlamydia trachomatis</i> | 166   | 33 |
| ORF1226 | 987713  | 987180  | hypothetical protein               | AE001342 | <i>Chlamydia trachomatis</i> | 447   | 59 |
| ORF1227 | 988215  | 987733  | Flagellar M-Ring Protein           | AE001342 | <i>Chlamydia trachomatis</i> | 304   | 44 |
| ORF1228 | 988754  | 988530  | Flagellar M-Ring Protein           | AE001342 | <i>Chlamydia trachomatis</i> | 92    | 36 |
| ORF1229 | 992542  | 992841  | hypothetical protein               | AE001343 | <i>Chlamydia trachomatis</i> | 112   | 39 |
| ORF1230 | 992759  | 993067  | hypothetical protein               | AE001343 | <i>Chlamydia trachomatis</i> | 100   | 32 |
| ORF1231 | 1004247 | 1004528 | D-Ala/Gly Permease                 | AE001344 | <i>Chlamydia trachomatis</i> | 283   | 64 |
| ORF1232 | 1015013 | 1014294 | 235aa long hypothetical protein    | AB009472 | <i>Pyrococcus horikoshii</i> | 104   | 54 |
| ORF1233 | 1056147 | 1056545 | putative                           |          |                              |       |    |
| ORF1234 | 1077682 | 1078035 | predicted disulfide bond isomerase | AE001351 | <i>Chlamydia trachomatis</i> | 233   | 46 |
| ORF1235 | 1088121 | 1088381 | putative                           |          |                              |       |    |
| ORF1236 | 1098430 | 1098852 | Predicted Kinase                   | AE001352 | <i>Chlamydia trachomatis</i> | 384   | 59 |
| ORF1237 | 1098798 | 1099319 | Predicted Kinase                   | AE001352 | <i>Chlamydia trachomatis</i> | 322   | 45 |
| ORF1238 | 1123198 | 1123515 | Transport Permease                 | AE001354 | <i>Chlamydia trachomatis</i> | 313   | 72 |
| ORF1239 | 1123606 | 1124256 | Tyrosine Transport                 | AE001354 | <i>Chlamydia trachomatis</i> | 577   | 58 |
| ORF1240 | 1124453 | 1124797 | Tyrosine Transport                 | AE001354 | <i>Chlamydia trachomatis</i> | 323   | 50 |
| ORF1241 | 1129253 | 1129567 | putative                           |          |                              |       |    |
| ORF1242 | 1164947 | 1164474 | hypothetical protein               | AE001357 | <i>Chlamydia trachomatis</i> | 412   | 56 |
| ORF1243 | 1170457 | 1170053 | hypothetical protein               | AE001358 | <i>Chlamydia trachomatis</i> | 283   | 59 |
| ORF1244 | 1172342 | 1171863 | ABC transporter permease           | AE001358 | <i>Chlamydia trachomatis</i> | 457   | 55 |
| ORF1245 | 1192155 | 1192835 | putative                           |          |                              |       |    |
| ORF1246 | 1192759 | 1192992 | putative                           |          |                              |       |    |
| ORF1247 | 1193861 | 1194142 | putative                           |          |                              |       |    |

| ORF     | Begin   | End     | Homology                       | ID       | Species                           | Score | I% |
|---------|---------|---------|--------------------------------|----------|-----------------------------------|-------|----|
| ORF1248 | 1194036 | 1193779 | (D-Amino Acid Dehydrogenase)   | AE001311 | <i>Chlamydia trachomatis</i>      | 269   | 79 |
| ORF1249 | 1209748 | 1209053 | conserved hypothetical protein | AE000958 | <i>Archaeoglobus fulgidus</i>     | 121   | 38 |
| ORF1250 | 1215111 | 1215419 | putative                       |          |                                   |       |    |
| ORF1251 | 1216302 | 1216538 | putative                       |          |                                   |       |    |
| ORF1252 | 1228072 | 1227818 | hypothetical protein           | AE001306 | <i>Chlamydia trachomatis</i>      | 134   | 39 |
| ORF1253 | 1228304 | 1228080 | xseB                           | AL021897 | <i>Mycobacterium tuberculosis</i> | 89    | 33 |
| ORF1254 | 26599   | 26222   | putative                       |          |                                   |       |    |
| ORF1255 | 27609   | 27367   | putative                       |          |                                   |       |    |
| ORF1256 | 67206   | 66967   | putative                       |          |                                   |       |    |
| ORF1257 | 70612   | 70352   | putative                       |          |                                   |       |    |
| ORF1258 | 132703  | 132945  | putative                       |          |                                   |       |    |
| ORF1259 | 178073  | 178393  | putative                       |          |                                   |       |    |
| ORF1260 | 208576  | 208349  | putative                       |          |                                   |       |    |
| ORF1261 | 209156  | 208929  | putative                       |          |                                   |       |    |
| ORF1262 | 209263  | 209024  | putative                       |          |                                   |       |    |
| ORF1263 | 210304  | 210639  | putative                       |          |                                   |       |    |
| ORF1264 | 299009  | 299452  | putative                       |          |                                   |       |    |
| ORF1265 | 352106  | 351717  | putative                       |          |                                   |       |    |
| ORF1266 | 420182  | 419949  | Flagellar Secretion Protein    | AE001280 | <i>Chlamydia trachomatis</i>      | 115   | 43 |
| ORF1267 | 553602  | 553381  | putative                       |          |                                   |       |    |
| ORF1268 | 556538  | 556807  | putative                       |          |                                   |       |    |
| ORF1269 | 594348  | 593797  | putative                       |          |                                   |       |    |
| ORF1270 | 595169  | 594876  | putative                       |          |                                   |       |    |
| ORF1271 | 662148  | 662381  | putative                       |          |                                   |       |    |
| ORF1272 | 706528  | 706893  | putative                       |          |                                   |       |    |
| ORF1273 | 803315  | 803650  | putative                       |          |                                   |       |    |
| ORF1274 | 849551  | 849306  | putative                       |          |                                   |       |    |
| ORF1275 | 913676  | 913275  | putative                       |          |                                   |       |    |
| ORF1276 | 927087  | 926836  | putative                       |          |                                   |       |    |
| ORF1277 | 930587  | 930360  | putative                       |          |                                   |       |    |
| ORF1278 | 986531  | 986764  | ORF 12                         | M72718   | <i>Bacillus subtilis</i>          | 106   | 48 |
| ORF1279 | 996229  | 996486  | putative                       |          |                                   |       |    |
| ORF1280 | 1000373 | 1000002 | putative                       |          |                                   |       |    |



| ORF     | Begin   | End     | Homology                        | ID       | Species                      | Score | I% |
|---------|---------|---------|---------------------------------|----------|------------------------------|-------|----|
| ORF1281 | 1010291 | 1010037 | putative                        |          |                              |       |    |
| ORF1282 | 1011128 | 1010793 | 106aa long hypothetical protein | AB009472 | <i>Pyrococcus horikoshii</i> | 159   | 50 |
| ORF1283 | 1012924 | 1012694 | putative                        |          |                              |       |    |
| ORF1284 | 1028659 | 1028913 | putative                        |          |                              |       |    |
| ORF1285 | 1086481 | 1086762 | putative                        |          |                              |       |    |
| ORF1286 | 1118658 | 1118879 | Phosphoglucosyltransferase      | AE001354 | <i>Chlamydia trachomatis</i> | 291   | 84 |
| ORF1287 | 1170098 | 1169835 | hypothetical protein            | AE001358 | <i>Chlamydia trachomatis</i> | 187   | 53 |
| ORF1288 | 1180828 | 1181184 | putative                        |          |                              |       |    |
| ORF1289 | 1182658 | 1183035 | putative                        |          |                              |       |    |
| ORF1290 | 1195076 | 1194795 | putative                        |          |                              |       |    |
| ORF1291 | 1195890 | 1196183 | putative                        |          |                              |       |    |

Table 2

| ORF Nos | begin | end   | potential start |
|---------|-------|-------|-----------------|
| 2       | 42    | 794   | 42              |
| 3       | 1258  | 1614  | 1261            |
| 4       | 1807  | 2418  | 1807            |
| 5       | 3393  | 2491  | 3393            |
| 6       | 3639  | 4067  | 3639            |
| 7       | 5649  | 4270  | 5649            |
| 8       | 7463  | 6012  | 7463            |
| 9       | 8051  | 8962  | 8051            |
| 10      | 9129  | 9959  | 9138            |
| 11      | 10687 | 10361 | 10639           |
| 12      | 10927 | 11232 | 10927           |
| 13      | 11246 | 12727 | 11246           |
| 14      | 12691 | 14190 | 12691           |
| 15      | 14484 | 17249 | 14484           |
| 16      | 16039 | 15770 | 16036           |
| 17      | 17845 | 20853 | 17845           |
| 18      | 21137 | 22042 | 21137           |
| 19      | 22046 | 23476 | 22046           |
| 20      | 23681 | 26110 | 23681           |
| 21      | 26109 | 25861 | 26109           |
| 22      | 26241 | 26978 | 26241           |
| 23      | 26960 | 27754 | 26960           |
| 24      | 27747 | 28577 | 27747           |
| 25      | 28887 | 29492 | 28950           |
| 26      | 29432 | 30028 | 29432           |
| 27      | 30024 | 31472 | 30024           |
| 28      | 31758 | 32288 | 31758           |
| 29      | 32201 | 33991 | 32201           |
| 30      | 33852 | 34541 | 33852           |
| 31      | 34783 | 36063 | 34783           |
| 32      | 36009 | 37529 | 36009           |
| 33      | 37881 | 39362 | 37881           |
| 34      | 39418 | 39161 | 39418           |

| ORF Nos | begin | end   | potential start |
|---------|-------|-------|-----------------|
| 35      | 39366 | 40715 | 39366           |
| 36      | 43076 | 41094 | 43076           |
| 37      | 43800 | 43066 | 43800           |
| 38      | 44828 | 43785 | 44768           |
| 39      | 45340 | 44753 | 45340           |
| 40      | 45752 | 45372 | 45752           |
| 41      | 46996 | 45701 | 46996           |
| 42      | 47961 | 47569 | 47961           |
| 43      | 48960 | 48040 | 48960           |
| 44      | 51452 | 50133 | 51452           |
| 45      | 52606 | 51335 | 52606           |
| 46      | 53684 | 53319 | 53684           |
| 47      | 54195 | 53746 | 54195           |
| 48      | 55278 | 56453 | 55278           |
| 49      | 56493 | 57266 | 56493           |
| 50      | 57297 | 58526 | 57297           |
| 51      | 59851 | 58565 | 59851           |
| 52      | 61495 | 59924 | 61495           |
| 53      | 61324 | 62151 | 61324           |
| 54      | 62132 | 62470 | 62132           |
| 55      | 62474 | 63733 | 62474           |
| 56      | 63881 | 64186 | 63881           |
| 57      | 64611 | 64318 | 64611           |
| 58      | 65485 | 64673 | 65485           |
| 59      | 65999 | 65301 | 65999           |
| 60      | 66244 | 67281 | 66244           |
| 61      | 67265 | 67699 | 67265           |
| 62      | 67703 | 68539 | 67760           |
| 63      | 68805 | 70736 | 68805           |
| 64      | 69172 | 68831 | 69172           |
| 65      | 70642 | 71142 | 70642           |
| 66      | 71325 | 72029 | 71325           |
| 67      | 72060 | 73637 | 72060           |
| 68      | 74061 | 76175 | 74061           |

| ORF Nos | begin  | end    | potential start |
|---------|--------|--------|-----------------|
| 69      | 78351  | 77680  | 78351           |
| 70      | 79356  | 78355  | 79356           |
| 71      | 79983  | 79693  | 79983           |
| 72      | 80441  | 79938  | 80441           |
| 73      | 80475  | 80969  | 80475           |
| 74      | 81296  | 83080  | 81332           |
| 75      | 83291  | 83932  | 83291           |
| 76      | 84005  | 84769  | 84005           |
| 77      | 84975  | 85244  | 84975           |
| 78      | 85123  | 85425  | 85123           |
| 79      | 85397  | 85903  | 85397           |
| 80      | 85909  | 86583  | 85909           |
| 81      | 86626  | 88065  | 86626           |
| 82      | 89257  | 91026  | 89257           |
| 83      | 91291  | 93030  | 91291           |
| 84      | 93295  | 94086  | 93295           |
| 85      | 95285  | 94707  | 95279           |
| 86      | 95667  | 96557  | 95667           |
| 87      | 96317  | 97456  | 96317           |
| 88      | 98435  | 97968  | 98435           |
| 89      | 99460  | 98426  | 99460           |
| 90      | 100144 | 101325 | 100144          |
| 91      | 101457 | 101720 | 101457          |
| 92      | 101704 | 102273 | 101704          |
| 93      | 102356 | 102805 | 102356          |
| 94      | 102835 | 103530 | 102835          |
| 95      | 103549 | 104058 | 103549          |
| 96      | 104096 | 104491 | 104096          |
| 97      | 104601 | 108386 | 104601          |
| 98      | 108401 | 112054 | 108401          |
| 99      | 112033 | 112590 | 112033          |
| 100     | 112672 | 113682 | 112672          |
| 101     | 113726 | 114121 | 113726          |
| 102     | 114711 | 114136 | 114711          |

| ORF Nos | begin  | end    | potential start |
|---------|--------|--------|-----------------|
| 103     | 115267 | 115755 | 115267          |
| 104     | 115911 | 116543 | 115911          |
| 105     | 116736 | 118055 | 116778          |
| 106     | 117968 | 118522 | 117968          |
| 107     | 118530 | 119843 | 118530          |
| 108     | 119816 | 120457 | 119816          |
| 109     | 120451 | 122430 | 120451          |
| 110     | 122504 | 122950 | 122504          |
| 111     | 123528 | 126347 | 123528          |
| 112     | 126332 | 129166 | 126332          |
| 113     | 134690 | 129213 | 134690          |
| 114     | 134925 | 136382 | 134931          |
| 115     | 137870 | 136482 | 137867          |
| 116     | 137899 | 138240 | 137899          |
| 117     | 138239 | 137928 | 138239          |
| 118     | 139558 | 138257 | 139558          |
| 119     | 140352 | 139516 | 140352          |
| 120     | 140498 | 141841 | 140498          |
| 121     | 141855 | 142658 | 141855          |
| 122     | 144258 | 143050 | 144258          |
| 123     | 145258 | 144494 | 145258          |
| 124     | 145454 | 146749 | 145454          |
| 125     | 147318 | 146767 | 147318          |
| 126     | 148261 | 147677 | 148261          |
| 127     | 149029 | 152157 | 149029          |
| 128     | 154108 | 152201 | 154108          |
| 129     | 155135 | 154308 | 155135          |
| 130     | 155141 | 155467 | 155141          |
| 131     | 155703 | 156779 | 155703          |
| 132     | 156748 | 157635 | 156748          |
| 133     | 157653 | 158996 | 157653          |
| 134     | 159363 | 159986 | 159363          |
| 135     | 159880 | 160446 | 159880          |
| 136     | 160477 | 160839 | 160477          |

| ORF Nos | begin  | end    | potential start |
|---------|--------|--------|-----------------|
| 137     | 160898 | 161539 | 160898          |
| 138     | 161527 | 162153 | 161527          |
| 139     | 162144 | 162443 | 162144          |
| 140     | 162437 | 164098 | 162437          |
| 141     | 165451 | 164228 | 165451          |
| 142     | 166349 | 165411 | 166349          |
| 143     | 166949 | 168442 | 166949          |
| 144     | 169416 | 171029 | 169416          |
| 145     | 170857 | 171459 | 170857          |
| 146     | 172652 | 173428 | 172652          |
| 147     | 174626 | 173439 | 174626          |
| 148     | 174816 | 175613 | 174816          |
| 149     | 175598 | 175954 | 175598          |
| 150     | 175958 | 176935 | 175958          |
| 151     | 177708 | 176938 | 177708          |
| 152     | 177128 | 177376 | 177128          |
| 153     | 179472 | 177841 | 179472          |
| 154     | 179822 | 179517 | 179822          |
| 155     | 181793 | 179943 | 181793          |
| 156     | 182628 | 181876 | 182628          |
| 157     | 184420 | 183074 | 184420          |
| 158     | 184988 | 184467 | 184988          |
| 159     | 185483 | 185112 | 185483          |
| 160     | 185902 | 185483 | 185902          |
| 161     | 186174 | 185839 | 186174          |
| 162     | 187720 | 186587 | 187720          |
| 163     | 188318 | 190933 | 188318          |
| 164     | 191090 | 191635 | 191090          |
| 165     | 191547 | 192743 | 191547          |
| 166     | 192969 | 193469 | 192969          |
| 167     | 194044 | 193610 | 194044          |
| 168     | 194196 | 195809 | 194196          |
| 169     | 196088 | 198073 | 196088          |
| 170     | 198132 | 199454 | 198132          |

| ORF Nos | begin  | end    | potential start |
|---------|--------|--------|-----------------|
| 171     | 199351 | 202818 | 199351          |
| 172     | 204552 | 202999 | 204552          |
| 173     | 205648 | 204692 | 205639          |
| 174     | 205807 | 207327 | 205807          |
| 175     | 207182 | 207775 | 207182          |
| 176     | 207779 | 208267 | 207779          |
| 177     | 208267 | 209577 | 208267          |
| 178     | 211807 | 211271 | 211807          |
| 179     | 212188 | 211844 | 212188          |
| 180     | 214079 | 212448 | 214079          |
| 181     | 214907 | 214083 | 214907          |
| 182     | 216154 | 215429 | 216154          |
| 183     | 216115 | 216678 | 216115          |
| 184     | 216728 | 217282 | 216728          |
| 185     | 217267 | 217866 | 217267          |
| 186     | 218593 | 218261 | 218590          |
| 187     | 219821 | 218994 | 219821          |
| 188     | 221382 | 220309 | 221382          |
| 189     | 222719 | 221433 | 222719          |
| 190     | 223521 | 222724 | 223521          |
| 191     | 224499 | 225008 | 224499          |
| 192     | 225140 | 225559 | 225140          |
| 193     | 225555 | 226802 | 225555          |
| 194     | 227800 | 226892 | 227743          |
| 195     | 228335 | 228072 | 228335          |
| 196     | 229251 | 228643 | 229251          |
| 197     | 230983 | 229622 | 230983          |
| 198     | 231483 | 230983 | 231483          |
| 199     | 232063 | 231509 | 232063          |
| 200     | 232739 | 232053 | 232739          |
| 201     | 233166 | 234356 | 233166          |
| 202     | 233518 | 233165 | 233518          |
| 203     | 234536 | 235186 | 234536          |
| 204     | 235379 | 236689 | 235379          |

| ORF Nos | begin  | end    | potential start |
|---------|--------|--------|-----------------|
| 205     | 236680 | 237618 | 236689          |
| 206     | 237521 | 238345 | 237521          |
| 207     | 238281 | 238973 | 238281          |
| 208     | 238871 | 240115 | 238871          |
| 209     | 240191 | 241564 | 240191          |
| 210     | 242281 | 241604 | 242281          |
| 211     | 242933 | 242274 | 242933          |
| 212     | 243416 | 242976 | 243416          |
| 213     | 243500 | 244531 | 243500          |
| 214     | 244480 | 246021 | 244480          |
| 215     | 246330 | 247811 | 246330          |
| 216     | 247831 | 249174 | 247870          |
| 217     | 249437 | 251038 | 249455          |
| 218     | 251325 | 252212 | 251325          |
| 219     | 253156 | 254007 | 253156          |
| 220     | 253974 | 254852 | 253974          |
| 221     | 255258 | 256094 | 255258          |
| 222     | 256640 | 257455 | 256640          |
| 223     | 257502 | 258239 | 257502          |
| 224     | 257869 | 257501 | 257869          |
| 225     | 259248 | 260897 | 259248          |
| 226     | 262753 | 261788 | 262753          |
| 227     | 263059 | 262757 | 263059          |
| 228     | 264375 | 263182 | 264375          |
| 229     | 265985 | 264747 | 265985          |
| 230     | 266637 | 266059 | 266637          |
| 231     | 267338 | 266538 | 267338          |
| 232     | 267922 | 267473 | 267922          |
| 233     | 269647 | 270771 | 269647          |
| 234     | 272777 | 273145 | 272777          |
| 235     | 273253 | 273636 | 273253          |
| 236     | 273705 | 273977 | 273705          |
| 237     | 276016 | 275717 | 276016          |
| 238     | 276439 | 276020 | 276418          |



| ORF Nos | begin  | end    | potential start |
|---------|--------|--------|-----------------|
| 239     | 276792 | 277253 | 276792          |
| 240     | 277318 | 277599 | 277318          |
| 241     | 278578 | 277877 | 278578          |
| 242     | 279258 | 278554 | 279258          |
| 243     | 280435 | 279533 | 280435          |
| 244     | 281547 | 280849 | 281547          |
| 245     | 281696 | 282325 | 281717          |
| 246     | 282459 | 284069 | 282459          |
| 247     | 284056 | 284517 | 284056          |
| 248     | 284606 | 285775 | 284606          |
| 249     | 285592 | 285987 | 285592          |
| 250     | 286179 | 286976 | 286179          |
| 251     | 287583 | 287002 | 287583          |
| 252     | 287951 | 287451 | 287951          |
| 253     | 288499 | 288816 | 288499          |
| 254     | 289674 | 288505 | 289674          |
| 255     | 288839 | 289213 | 288839          |
| 256     | 289970 | 290254 | 289970          |
| 257     | 291931 | 292803 | 291931          |
| 258     | 293258 | 292755 | 293258          |
| 259     | 293718 | 293272 | 293718          |
| 260     | 294630 | 293953 | 294630          |
| 261     | 296153 | 294636 | 296153          |
| 262     | 294817 | 295068 | 294817          |
| 263     | 296354 | 297862 | 296354          |
| 264     | 298415 | 297879 | 298415          |
| 265     | 298777 | 298253 | 298777          |
| 266     | 299572 | 298781 | 299572          |
| 267     | 300487 | 299633 | 300487          |
| 268     | 301586 | 300702 | 301568          |
| 269     | 302440 | 301571 | 302440          |
| 270     | 302838 | 302437 | 302838          |
| 271     | 303335 | 302745 | 303335          |
| 272     | 304394 | 303852 | 304394          |

| ORF Nos | begin  | end    | potential start |
|---------|--------|--------|-----------------|
| 273     | 304606 | 305223 | 304606          |
| 274     | 305394 | 306236 | 305394          |
| 275     | 306501 | 307439 | 306501          |
| 276     | 308033 | 307458 | 308033          |
| 277     | 308924 | 308037 | 308924          |
| 278     | 309485 | 310180 | 309485          |
| 279     | 310426 | 311214 | 310426          |
| 280     | 311597 | 311253 | 311504          |
| 281     | 312772 | 311780 | 312772          |
| 282     | 313425 | 312772 | 313425          |
| 283     | 313646 | 313377 | 313646          |
| 284     | 313937 | 314665 | 313937          |
| 285     | 315576 | 314755 | 315576          |
| 286     | 316157 | 315531 | 316157          |
| 287     | 318657 | 316156 | 318657          |
| 288     | 321042 | 318676 | 321042          |
| 289     | 321445 | 321098 | 321445          |
| 290     | 322309 | 321710 | 322309          |
| 291     | 323190 | 322366 | 323181          |
| 292     | 323843 | 323181 | 323843          |
| 293     | 324878 | 323856 | 324878          |
| 294     | 325340 | 326410 | 325340          |
| 295     | 326433 | 327836 | 326433          |
| 296     | 328465 | 327839 | 328465          |
| 297     | 329360 | 328857 | 329360          |
| 298     | 330907 | 329357 | 330907          |
| 299     | 332455 | 330956 | 332455          |
| 300     | 334536 | 332395 | 334536          |
| 301     | 336091 | 334877 | 336091          |
| 302     | 336103 | 337302 | 336103          |
| 303     | 338129 | 338830 | 338129          |
| 304     | 338965 | 339501 | 338965          |
| 305     | 339508 | 340143 | 339508          |
| 306     | 340247 | 342967 | 340247          |

| ORF Nos | begin  | end    | potential start |
|---------|--------|--------|-----------------|
| 307     | 343385 | 343810 | 343385          |
| 308     | 344171 | 343935 | 344171          |
| 309     | 345082 | 344330 | 345073          |
| 310     | 346005 | 345082 | 346005          |
| 311     | 346784 | 346437 | 346784          |
| 312     | 347029 | 346715 | 347029          |
| 313     | 347034 | 347723 | 347034          |
| 314     | 348075 | 350459 | 348075          |
| 315     | 350598 | 351071 | 350598          |
| 316     | 351075 | 352175 | 351096          |
| 317     | 353291 | 352230 | 353267          |
| 318     | 353442 | 354467 | 353442          |
| 319     | 354451 | 354933 | 354451          |
| 320     | 355000 | 355449 | 355000          |
| 321     | 355448 | 356743 | 355448          |
| 322     | 355953 | 355642 | 355953          |
| 323     | 359310 | 356827 | 359310          |
| 324     | 359120 | 359377 | 359120          |
| 325     | 359525 | 359908 | 359525          |
| 326     | 361290 | 359947 | 361290          |
| 327     | 363785 | 361362 | 363746          |
| 328     | 364496 | 363888 | 364496          |
| 329     | 364832 | 365290 | 364832          |
| 330     | 365304 | 365669 | 365304          |
| 331     | 366599 | 365667 | 366599          |
| 332     | 367291 | 369030 | 367291          |
| 333     | 369134 | 369808 | 369134          |
| 334     | 369917 | 370438 | 369917          |
| 335     | 370365 | 372647 | 370365          |
| 336     | 372557 | 373066 | 372557          |
| 337     | 373020 | 373442 | 373020          |
| 338     | 373467 | 374195 | 373467          |
| 339     | 374176 | 375099 | 374176          |
| 340     | 375676 | 375083 | 375676          |

| ORF Nos | begin  | end    | potential start |
|---------|--------|--------|-----------------|
| 341     | 376173 | 375634 | 376173          |
| 342     | 376564 | 377643 | 376564          |
| 343     | 377956 | 379773 | 377956          |
| 344     | 379781 | 380425 | 379805          |
| 345     | 380281 | 381000 | 380281          |
| 346     | 381008 | 381460 | 381008          |
| 347     | 381460 | 383037 | 381460          |
| 348     | 383257 | 383523 | 383257          |
| 349     | 383553 | 385304 | 383553          |
| 350     | 385397 | 386458 | 385400          |
| 351     | 387242 | 386514 | 387242          |
| 352     | 388764 | 387013 | 388764          |
| 353     | 390120 | 390932 | 390120          |
| 354     | 390919 | 391818 | 390961          |
| 355     | 392379 | 391885 | 392379          |
| 356     | 392582 | 392986 | 392582          |
| 357     | 392776 | 393684 | 392776          |
| 358     | 394151 | 394804 | 394151          |
| 359     | 394928 | 395308 | 394928          |
| 360     | 395259 | 395990 | 395259          |
| 361     | 397815 | 395953 | 397815          |
| 362     | 398850 | 397831 | 398850          |
| 363     | 400085 | 399099 | 400085          |
| 364     | 401245 | 400073 | 401236          |
| 365     | 401474 | 401136 | 401474          |
| 366     | 402199 | 401423 | 402199          |
| 367     | 403193 | 402186 | 403166          |
| 368     | 403650 | 404165 | 403650          |
| 369     | 404343 | 405914 | 404343          |
| 370     | 405984 | 407327 | 405984          |
| 371     | 407712 | 408806 | 407712          |
| 372     | 410439 | 409075 | 410439          |
| 373     | 411826 | 410954 | 411826          |
| 374     | 412482 | 414302 | 412482          |

| ORF Nos | begin  | end    | potential start |
|---------|--------|--------|-----------------|
| 375     | 415402 | 414407 | 415402          |
| 376     | 415848 | 415237 | 415848          |
| 377     | 417131 | 415866 | 417131          |
| 378     | 417258 | 417566 | 417258          |
| 379     | 418326 | 417454 | 418326          |
| 380     | 420057 | 418426 | 420057          |
| 381     | 420448 | 420720 | 420448          |
| 382     | 420980 | 421552 | 420980          |
| 383     | 421556 | 422029 | 421556          |
| 384     | 422461 | 422925 | 422461          |
| 385     | 423562 | 424320 | 423562          |
| 386     | 424250 | 424591 | 424250          |
| 387     | 424830 | 426047 | 424830          |
| 388     | 426240 | 427397 | 426240          |
| 389     | 428841 | 430703 | 428841          |
| 390     | 430694 | 431446 | 430694          |
| 391     | 431597 | 432100 | 431597          |
| 392     | 432165 | 432779 | 432165          |
| 393     | 433272 | 432832 | 433272          |
| 394     | 433925 | 433227 | 433922          |
| 395     | 436678 | 433934 | 436678          |
| 396     | 437176 | 438357 | 437176          |
| 397     | 440317 | 438518 | 440317          |
| 398     | 440001 | 440345 | 440001          |
| 399     | 441233 | 440517 | 441233          |
| 400     | 440719 | 441012 | 440719          |
| 401     | 442192 | 441230 | 442192          |
| 402     | 442888 | 442343 | 442888          |
| 403     | 442371 | 442961 | 442371          |
| 404     | 443578 | 443003 | 443578          |
| 405     | 444500 | 443526 | 444500          |
| 406     | 444842 | 444528 | 444842          |
| 407     | 445009 | 444743 | 445009          |
| 408     | 445718 | 445182 | 445718          |

| ORF Nos | begin  | end    | potential start |
|---------|--------|--------|-----------------|
| 409     | 445807 | 447804 | 445807          |
| 410     | 448738 | 447803 | 448738          |
| 411     | 449628 | 448618 | 449628          |
| 412     | 450298 | 450867 | 450298          |
| 413     | 450713 | 451207 | 450713          |
| 414     | 451211 | 452452 | 451211          |
| 415     | 452448 | 453659 | 452448          |
| 416     | 454843 | 453725 | 454843          |
| 417     | 455608 | 454865 | 455608          |
| 418     | 456243 | 457007 | 456243          |
| 419     | 457016 | 457708 | 457016          |
| 420     | 458368 | 457979 | 458368          |
| 421     | 459496 | 458372 | 459496          |
| 422     | 459493 | 460194 | 459493          |
| 423     | 461446 | 460355 | 461446          |
| 424     | 462298 | 461450 | 462298          |
| 425     | 462444 | 463349 | 462444          |
| 426     | 464241 | 463342 | 464241          |
| 427     | 464574 | 465065 | 464574          |
| 428     | 465129 | 465611 | 465129          |
| 429     | 465571 | 466317 | 465571          |
| 430     | 466317 | 467093 | 466317          |
| 431     | 466999 | 467502 | 466999          |
| 432     | 469691 | 467715 | 469691          |
| 433     | 470691 | 469660 | 470691          |
| 434     | 472010 | 470709 | 472010          |
| 435     | 471545 | 471799 | 471545          |
| 436     | 472359 | 472045 | 472359          |
| 437     | 473523 | 472732 | 473523          |
| 438     | 474889 | 473441 | 474889          |
| 439     | 477323 | 475365 | 477323          |
| 440     | 478496 | 477597 | 478496          |
| 441     | 478722 | 479273 | 478722          |
| 442     | 479277 | 479705 | 479277          |

| ORF Nos | begin  | end    | potential start |
|---------|--------|--------|-----------------|
| 443     | 480050 | 481450 | 480050          |
| 444     | 481469 | 482053 | 481469          |
| 445     | 482600 | 482025 | 482600          |
| 446     | 482654 | 484204 | 482654          |
| 447     | 484211 | 485170 | 484211          |
| 448     | 485170 | 485838 | 485170          |
| 449     | 485813 | 486580 | 485813          |
| 450     | 486976 | 486638 | 486976          |
| 451     | 489071 | 487764 | 489071          |
| 452     | 489341 | 489090 | 489341          |
| 453     | 489958 | 489152 | 489958          |
| 454     | 490549 | 489962 | 490549          |
| 455     | 491163 | 490522 | 491163          |
| 456     | 491396 | 491112 | 491396          |
| 457     | 492121 | 491390 | 492121          |
| 458     | 492304 | 494838 | 492304          |
| 459     | 495943 | 494822 | 495943          |
| 460     | 496011 | 496565 | 496170          |
| 461     | 496569 | 497228 | 496569          |
| 462     | 497358 | 497834 | 497358          |
| 463     | 497770 | 498327 | 497770          |
| 464     | 499209 | 499589 | 499209          |
| 465     | 499520 | 499792 | 499520          |
| 466     | 500774 | 504169 | 500774          |
| 467     | 504139 | 504600 | 504139          |
| 468     | 504865 | 506877 | 504865          |
| 469     | 506790 | 507671 | 506790          |
| 470     | 507718 | 510507 | 507718          |
| 471     | 508325 | 507912 | 508325          |
| 472     | 510660 | 513440 | 510660          |
| 473     | 514965 | 513787 | 514920          |
| 474     | 517347 | 515419 | 517347          |
| 475     | 517058 | 517363 | 517058          |
| 476     | 517798 | 517277 | 517798          |

| ORF Nos | begin  | end    | potential start |
|---------|--------|--------|-----------------|
| 477     | 518200 | 517847 | 518200          |
| 478     | 518300 | 521146 | 518363          |
| 479     | 521392 | 522948 | 521407          |
| 480     | 523244 | 524809 | 523322          |
| 481     | 524379 | 524125 | 524379          |
| 482     | 524649 | 526238 | 524649          |
| 483     | 526265 | 527104 | 526268          |
| 484     | 526947 | 526702 | 526947          |
| 485     | 526975 | 528450 | 526975          |
| 486     | 528408 | 529199 | 528408          |
| 487     | 530612 | 529542 | 530612          |
| 488     | 531656 | 530616 | 531656          |
| 489     | 533974 | 532067 | 533974          |
| 490     | 536432 | 534324 | 536432          |
| 491     | 537150 | 536707 | 537150          |
| 492     | 537928 | 537080 | 537928          |
| 493     | 538438 | 537932 | 538438          |
| 494     | 538737 | 538333 | 538737          |
| 495     | 539594 | 539127 | 539594          |
| 496     | 541215 | 539590 | 541215          |
| 497     | 542571 | 541282 | 542571          |
| 498     | 543014 | 542457 | 543014          |
| 499     | 543369 | 542962 | 543369          |
| 500     | 543809 | 546628 | 543815          |
| 501     | 546619 | 549525 | 546619          |
| 502     | 547293 | 546994 | 547293          |
| 503     | 549699 | 550523 | 549699          |
| 504     | 550490 | 551551 | 550490          |
| 505     | 551448 | 552623 | 551448          |
| 506     | 552652 | 555117 | 552652          |
| 507     | 555029 | 555493 | 555029          |
| 508     | 558006 | 555673 | 558006          |
| 509     | 559694 | 558162 | 559694          |
| 510     | 558208 | 558573 | 558208          |



| ORF Nos | begin  | end    | potential start |
|---------|--------|--------|-----------------|
| 511     | 561692 | 559899 | 561692          |
| 512     | 561412 | 561708 | 561412          |
| 513     | 563942 | 561777 | 563942          |
| 514     | 564969 | 563950 | 564969          |
| 515     | 566204 | 564936 | 566198          |
| 516     | 567717 | 566302 | 567717          |
| 517     | 568526 | 567708 | 568526          |
| 518     | 569467 | 568742 | 569467          |
| 519     | 571065 | 569431 | 571065          |
| 520     | 571828 | 571118 | 571783          |
| 521     | 572202 | 573308 | 572202          |
| 522     | 573146 | 575056 | 573146          |
| 523     | 575023 | 575916 | 575023          |
| 524     | 577891 | 576497 | 577891          |
| 525     | 578914 | 578204 | 578914          |
| 526     | 579924 | 578857 | 579924          |
| 527     | 580187 | 579858 | 580187          |
| 528     | 580017 | 580406 | 580017          |
| 529     | 581086 | 580187 | 581086          |
| 530     | 581367 | 581828 | 581367          |
| 531     | 581678 | 582367 | 581678          |
| 532     | 582361 | 583428 | 582361          |
| 533     | 584690 | 583431 | 584690          |
| 534     | 585237 | 584950 | 585237          |
| 535     | 585626 | 586888 | 585626          |
| 536     | 586846 | 587907 | 586888          |
| 537     | 589049 | 588180 | 589049          |
| 538     | 590500 | 589301 | 590455          |
| 539     | 590755 | 592458 | 590755          |
| 540     | 592526 | 592903 | 592526          |
| 541     | 592836 | 593747 | 592836          |
| 542     | 593747 | 594298 | 593747          |
| 543     | 594331 | 595947 | 594331          |
| 544     | 595905 | 596309 | 595905          |

| ORF Nos | begin  | end    | potential start |
|---------|--------|--------|-----------------|
| 545     | 596514 | 597215 | 596514          |
| 546     | 597184 | 597957 | 597184          |
| 547     | 597755 | 598612 | 597755          |
| 548     | 598602 | 599204 | 598602          |
| 549     | 599373 | 599939 | 599373          |
| 550     | 600903 | 602072 | 600903          |
| 551     | 602240 | 602587 | 602240          |
| 552     | 602637 | 603272 | 602637          |
| 553     | 603142 | 604512 | 603142          |
| 554     | 604627 | 605853 | 604627          |
| 555     | 605790 | 606620 | 605790          |
| 556     | 606571 | 607281 | 606571          |
| 557     | 609004 | 607355 | 609004          |
| 558     | 610906 | 609932 | 610906          |
| 559     | 611786 | 611004 | 611786          |
| 560     | 612333 | 611746 | 612333          |
| 561     | 613897 | 612341 | 613897          |
| 562     | 615179 | 616279 | 615179          |
| 563     | 616610 | 617383 | 616610          |
| 564     | 618796 | 617810 | 618796          |
| 565     | 620004 | 618826 | 620004          |
| 566     | 619649 | 619918 | 619649          |
| 567     | 621265 | 620021 | 621265          |
| 568     | 622359 | 621265 | 622359          |
| 569     | 623420 | 622560 | 623420          |
| 570     | 624297 | 623335 | 624297          |
| 571     | 624773 | 624174 | 624773          |
| 572     | 625029 | 625484 | 625029          |
| 573     | 625488 | 625883 | 625488          |
| 574     | 625892 | 626395 | 625892          |
| 575     | 626444 | 627790 | 626444          |
| 576     | 627912 | 628607 | 627930          |
| 577     | 628774 | 629697 | 628774          |
| 578     | 629660 | 631639 | 629660          |

| ORF Nos | begin  | end    | potential start |
|---------|--------|--------|-----------------|
| 579     | 631725 | 633551 | 631725          |
| 580     | 633520 | 636957 | 633520          |
| 581     | 637232 | 638098 | 637232          |
| 582     | 640648 | 639593 | 640648          |
| 583     | 640979 | 640728 | 640979          |
| 584     | 641327 | 641007 | 641327          |
| 585     | 641687 | 642283 | 641687          |
| 586     | 643023 | 642286 | 643023          |
| 587     | 643330 | 643076 | 643330          |
| 588     | 643704 | 643351 | 643704          |
| 589     | 645628 | 643676 | 645628          |
| 590     | 645783 | 645538 | 645756          |
| 591     | 646269 | 645793 | 646269          |
| 592     | 646751 | 646314 | 646751          |
| 593     | 647848 | 647045 | 647848          |
| 594     | 648393 | 650336 | 648393          |
| 595     | 651016 | 650420 | 651007          |
| 596     | 652956 | 651289 | 652956          |
| 597     | 653395 | 653126 | 653395          |
| 598     | 655740 | 654193 | 655740          |
| 599     | 656508 | 655966 | 656508          |
| 600     | 658140 | 657022 | 658140          |
| 601     | 660216 | 658525 | 660216          |
| 602     | 663238 | 660248 | 663238          |
| 603     | 664461 | 663157 | 664452          |
| 604     | 665735 | 664635 | 665735          |
| 605     | 666212 | 666994 | 666212          |
| 606     | 666998 | 667921 | 666998          |
| 607     | 667909 | 668568 | 667909          |
| 608     | 668502 | 669203 | 668502          |
| 609     | 669154 | 670893 | 669175          |
| 610     | 672226 | 670853 | 672226          |
| 611     | 671137 | 671424 | 671137          |
| 612     | 672453 | 673001 | 672453          |

| ORF Nos | begin  | end    | potential start |
|---------|--------|--------|-----------------|
| 613     | 673072 | 674721 | 673072          |
| 614     | 674549 | 674262 | 674549          |
| 615     | 675518 | 674796 | 675518          |
| 616     | 676083 | 675499 | 676083          |
| 617     | 676630 | 676067 | 676630          |
| 618     | 677016 | 676600 | 677016          |
| 619     | 677647 | 677015 | 677647          |
| 620     | 677990 | 678259 | 677990          |
| 621     | 679444 | 680097 | 679444          |
| 622     | 680097 | 680897 | 680097          |
| 623     | 681637 | 680849 | 681637          |
| 624     | 681409 | 682281 | 681409          |
| 625     | 682453 | 682821 | 682453          |
| 626     | 682763 | 683902 | 682763          |
| 627     | 684616 | 683969 | 684616          |
| 628     | 685169 | 684534 | 685169          |
| 629     | 685986 | 685117 | 685986          |
| 630     | 686278 | 687288 | 686278          |
| 631     | 687483 | 688151 | 687483          |
| 632     | 688740 | 689501 | 688740          |
| 633     | 690242 | 689622 | 690242          |
| 634     | 690470 | 691126 | 690470          |
| 635     | 692600 | 691497 | 692600          |
| 636     | 692674 | 695064 | 692674          |
| 637     | 695049 | 696032 | 695064          |
| 638     | 697964 | 696585 | 697964          |
| 639     | 699803 | 698274 | 699803          |
| 640     | 701926 | 699788 | 701926          |
| 641     | 703196 | 702567 | 703196          |
| 642     | 704221 | 703208 | 704221          |
| 643     | 704240 | 705289 | 704240          |
| 644     | 706070 | 705300 | 706070          |
| 645     | 706841 | 706254 | 706838          |
| 646     | 707596 | 706811 | 707596          |

| ORF Nos | begin  | end    | potential start |
|---------|--------|--------|-----------------|
| 647     | 708666 | 707677 | 708666          |
| 648     | 709793 | 709119 | 709793          |
| 649     | 711523 | 710132 | 711523          |
| 650     | 712236 | 711523 | 712236          |
| 651     | 714734 | 712125 | 714734          |
| 652     | 715759 | 714761 | 715759          |
| 653     | 717538 | 715886 | 717538          |
| 654     | 719113 | 720243 | 719113          |
| 655     | 720590 | 722422 | 720590          |
| 656     | 722406 | 723056 | 722406          |
| 657     | 723551 | 723120 | 723551          |
| 658     | 724246 | 723626 | 724246          |
| 659     | 724754 | 724251 | 724754          |
| 660     | 725868 | 724900 | 725868          |
| 661     | 727115 | 726270 | 727115          |
| 662     | 728126 | 727119 | 728126          |
| 663     | 728594 | 728208 | 728594          |
| 664     | 729614 | 728604 | 729614          |
| 665     | 729778 | 729533 | 729778          |
| 666     | 730149 | 729751 | 730149          |
| 667     | 730539 | 730174 | 730539          |
| 668     | 731983 | 730598 | 731983          |
| 669     | 732427 | 731996 | 732427          |
| 670     | 732917 | 732423 | 732917          |
| 671     | 733598 | 733320 | 733598          |
| 672     | 733869 | 733492 | 733869          |
| 673     | 734298 | 733900 | 734298          |
| 674     | 734858 | 734319 | 734858          |
| 675     | 735195 | 734863 | 735195          |
| 676     | 735578 | 735342 | 735578          |
| 677     | 735861 | 735604 | 735861          |
| 678     | 736492 | 736079 | 736492          |
| 679     | 737192 | 736524 | 737192          |
| 680     | 737555 | 737211 | 737555          |

| ORF Nos | begin  | end    | potential start |
|---------|--------|--------|-----------------|
| 681     | 738688 | 737837 | 738688          |
| 682     | 739048 | 738713 | 739048          |
| 683     | 739736 | 739065 | 739736          |
| 684     | 740477 | 739773 | 740477          |
| 685     | 740659 | 740958 | 740659          |
| 686     | 741722 | 740721 | 741722          |
| 687     | 742789 | 741827 | 742789          |
| 688     | 743618 | 742782 | 743618          |
| 689     | 744092 | 743634 | 744092          |
| 690     | 744604 | 744107 | 744604          |
| 691     | 744953 | 744498 | 744953          |
| 692     | 746608 | 744986 | 746608          |
| 693     | 747085 | 746621 | 747085          |
| 694     | 747974 | 747219 | 747974          |
| 695     | 748594 | 748169 | 748594          |
| 696     | 749145 | 748573 | 749145          |
| 697     | 749652 | 749957 | 749652          |
| 698     | 750446 | 749979 | 750446          |
| 699     | 751219 | 750446 | 751219          |
| 700     | 753042 | 751291 | 753042          |
| 701     | 754309 | 753020 | 754309          |
| 702     | 755120 | 756175 | 755120          |
| 703     | 756120 | 756485 | 756120          |
| 704     | 756499 | 760227 | 756499          |
| 705     | 761217 | 760297 | 761178          |
| 706     | 761297 | 761809 | 761330          |
| 707     | 761782 | 762282 | 761782          |
| 708     | 762260 | 762895 | 762299          |
| 709     | 762867 | 763316 | 762867          |
| 710     | 763780 | 763325 | 763780          |
| 711     | 763861 | 765168 | 763861          |
| 712     | 766809 | 765697 | 766809          |
| 713     | 768051 | 766888 | 768051          |
| 714     | 768566 | 768321 | 768566          |

| ORF Nos | begin  | end    | potential start |
|---------|--------|--------|-----------------|
| 715     | 769342 | 768551 | 769342          |
| 716     | 770532 | 769378 | 770532          |
| 717     | 771451 | 770804 | 771451          |
| 718     | 773058 | 771847 | 773058          |
| 719     | 773094 | 773456 | 773094          |
| 720     | 774376 | 773093 | 774376          |
| 721     | 775123 | 774380 | 775123          |
| 722     | 775398 | 774916 | 775398          |
| 723     | 775046 | 776077 | 775046          |
| 724     | 776070 | 777041 | 776070          |
| 725     | 777964 | 777536 | 777964          |
| 726     | 778176 | 777904 | 778176          |
| 727     | 778621 | 779334 | 778684          |
| 728     | 781173 | 780307 | 781173          |
| 729     | 781526 | 781116 | 781526          |
| 730     | 782784 | 781555 | 782784          |
| 731     | 783572 | 782805 | 783572          |
| 732     | 785032 | 783581 | 785032          |
| 733     | 786412 | 785360 | 786412          |
| 734     | 788429 | 786450 | 788429          |
| 735     | 788944 | 788528 | 788944          |
| 736     | 789758 | 788901 | 789758          |
| 737     | 790332 | 791504 | 790338          |
| 738     | 791846 | 792721 | 791846          |
| 739     | 792724 | 793569 | 792724          |
| 740     | 793580 | 794323 | 793580          |
| 741     | 794304 | 794843 | 794304          |
| 742     | 795217 | 795732 | 795217          |
| 743     | 795722 | 796795 | 795722          |
| 744     | 798735 | 797053 | 798735          |
| 745     | 799823 | 798681 | 799823          |
| 746     | 799297 | 799578 | 799297          |
| 747     | 801313 | 799808 | 801313          |
| 748     | 802453 | 801332 | 802453          |

| ORF Nos | begin  | end    | potential start |
|---------|--------|--------|-----------------|
| 749     | 803299 | 802457 | 803299          |
| 750     | 803811 | 803290 | 803811          |
| 751     | 805151 | 803826 | 805151          |
| 752     | 805860 | 805156 | 805860          |
| 753     | 806604 | 806332 | 806604          |
| 754     | 806913 | 806608 | 806913          |
| 755     | 808222 | 806903 | 808222          |
| 756     | 808751 | 808146 | 808751          |
| 757     | 809437 | 808673 | 809437          |
| 758     | 809939 | 809454 | 809939          |
| 759     | 811235 | 810213 | 811235          |
| 760     | 811779 | 813056 | 811779          |
| 761     | 812890 | 812516 | 812890          |
| 762     | 812954 | 813583 | 812954          |
| 763     | 813587 | 815023 | 813587          |
| 764     | 815420 | 815746 | 815420          |
| 765     | 816036 | 817010 | 816036          |
| 766     | 817111 | 817356 | 817111          |
| 767     | 817791 | 818609 | 817797          |
| 768     | 818609 | 819094 | 818609          |
| 769     | 819104 | 819823 | 819104          |
| 770     | 820722 | 819826 | 820722          |
| 771     | 822313 | 821000 | 822313          |
| 772     | 823503 | 822238 | 823503          |
| 773     | 823678 | 825612 | 823678          |
| 774     | 825461 | 826312 | 825461          |
| 775     | 827280 | 826645 | 827280          |
| 776     | 828604 | 827171 | 828604          |
| 777     | 830026 | 828713 | 830026          |
| 778     | 831047 | 830085 | 831047          |
| 779     | 831725 | 831051 | 831725          |
| 780     | 832220 | 833098 | 832220          |
| 781     | 833851 | 833396 | 833851          |
| 782     | 834068 | 835039 | 834068          |



| ORF Nos | begin  | end    | potential start |
|---------|--------|--------|-----------------|
| 783     | 835792 | 835127 | 835792          |
| 784     | 837624 | 836116 | 837624          |
| 785     | 838951 | 840882 | 838951          |
| 786     | 840869 | 842185 | 840869          |
| 787     | 841989 | 843455 | 841989          |
| 788     | 843242 | 844021 | 843242          |
| 789     | 845018 | 843987 | 844997          |
| 790     | 846174 | 844990 | 846174          |
| 791     | 848509 | 846311 | 848509          |
| 792     | 848568 | 849014 | 848568          |
| 793     | 849082 | 850488 | 849088          |
| 794     | 851512 | 850574 | 851512          |
| 795     | 852064 | 852447 | 852064          |
| 796     | 852398 | 853690 | 852398          |
| 797     | 855118 | 854243 | 855118          |
| 798     | 855751 | 855128 | 855751          |
| 799     | 856551 | 855829 | 856551          |
| 800     | 856730 | 858556 | 856730          |
| 801     | 858717 | 859601 | 858717          |
| 802     | 859591 | 860205 | 859591          |
| 803     | 861132 | 860284 | 861132          |
| 804     | 861426 | 861163 | 861426          |
| 805     | 861701 | 862921 | 861701          |
| 806     | 863026 | 864798 | 863026          |
| 807     | 864831 | 865256 | 864831          |
| 808     | 865226 | 866581 | 865226          |
| 809     | 866562 | 867119 | 866562          |
| 810     | 867025 | 867816 | 867025          |
| 811     | 867820 | 868497 | 867820          |
| 812     | 869743 | 868661 | 869743          |
| 813     | 870633 | 870094 | 870633          |
| 814     | 871929 | 870646 | 871929          |
| 815     | 872538 | 872086 | 872538          |
| 816     | 873908 | 872517 | 873908          |

| ORF Nos | begin  | end    | potential start |
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| 817     | 874281 | 874670 | 874281          |
| 818     | 874582 | 875286 | 874582          |
| 819     | 877857 | 875377 | 877857          |
| 820     | 878446 | 879255 | 878446          |
| 821     | 880635 | 879268 | 880635          |
| 822     | 882524 | 880593 | 882524          |
| 823     | 882612 | 883319 | 882612          |
| 824     | 884155 | 883538 | 884155          |
| 825     | 884340 | 885611 | 884343          |
| 826     | 885722 | 887302 | 885722          |
| 827     | 887587 | 888153 | 887587          |
| 828     | 888627 | 888220 | 888627          |
| 829     | 889330 | 888716 | 889330          |
| 830     | 889898 | 889323 | 889898          |
| 831     | 891190 | 889898 | 891190          |
| 832     | 891828 | 891247 | 891828          |
| 833     | 892421 | 892017 | 892421          |
| 834     | 893116 | 892421 | 893116          |
| 835     | 892521 | 892925 | 892521          |
| 836     | 893392 | 895419 | 893392          |
| 837     | 895745 | 896527 | 895745          |
| 838     | 896668 | 897558 | 896668          |
| 839     | 897565 | 899442 | 897565          |
| 840     | 899420 | 900229 | 899420          |
| 841     | 903230 | 900237 | 903230          |
| 842     | 905081 | 903234 | 905081          |
| 843     | 906931 | 905045 | 906931          |
| 844     | 907248 | 907832 | 907299          |
| 845     | 907784 | 908128 | 907784          |
| 846     | 908132 | 908677 | 908132          |
| 847     | 908589 | 909320 | 908589          |
| 848     | 909405 | 911465 | 909405          |
| 849     | 911677 | 912360 | 911725          |
| 850     | 912303 | 912821 | 912303          |

| ORF Nos | begin  | end    | potential start |
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| 851     | 912937 | 913983 | 912937          |
| 852     | 915128 | 914067 | 915128          |
| 853     | 916658 | 915303 | 916658          |
| 854     | 915627 | 915376 | 915627          |
| 855     | 917707 | 916853 | 917707          |
| 856     | 918837 | 917722 | 918837          |
| 857     | 919868 | 918837 | 919868          |
| 858     | 920434 | 919880 | 920434          |
| 859     | 921187 | 920438 | 921187          |
| 860     | 921959 | 921195 | 921959          |
| 861     | 923773 | 921995 | 923773          |
| 862     | 922146 | 922415 | 922146          |
| 863     | 923943 | 923674 | 923943          |
| 864     | 924077 | 925006 | 924077          |
| 865     | 925436 | 925083 | 925436          |
| 866     | 926524 | 925349 | 926524          |
| 867     | 927920 | 926433 | 927920          |
| 868     | 928319 | 927951 | 928319          |
| 869     | 928963 | 928334 | 928963          |
| 870     | 929248 | 930987 | 929248          |
| 871     | 930995 | 932059 | 930995          |
| 872     | 932121 | 933515 | 932175          |
| 873     | 932881 | 932513 | 932881          |
| 874     | 933485 | 935746 | 933485          |
| 875     | 935724 | 937082 | 935724          |
| 876     | 937229 | 938410 | 937229          |
| 877     | 938281 | 938805 | 938281          |
| 878     | 938809 | 939255 | 938824          |
| 879     | 939165 | 939782 | 939165          |
| 880     | 939760 | 940791 | 939790          |
| 881     | 940822 | 941106 | 940822          |
| 882     | 940977 | 941351 | 940977          |
| 883     | 942537 | 941623 | 942429          |
| 884     | 942784 | 942500 | 942763          |

| ORF Nos | begin  | end    | potential start |
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| 885     | 943149 | 942799 | 943149          |
| 886     | 943799 | 943029 | 943799          |
| 887     | 944055 | 943732 | 944055          |
| 888     | 944413 | 943994 | 944404          |
| 889     | 945395 | 944556 | 945395          |
| 890     | 945853 | 945389 | 945853          |
| 891     | 946392 | 945751 | 946392          |
| 892     | 947410 | 948081 | 947431          |
| 893     | 949871 | 948915 | 949871          |
| 894     | 951058 | 949868 | 951058          |
| 895     | 951249 | 950959 | 951249          |
| 896     | 951664 | 952134 | 951664          |
| 897     | 952674 | 952165 | 952674          |
| 898     | 953491 | 952589 | 953491          |
| 899     | 955324 | 953495 | 955324          |
| 900     | 955823 | 955281 | 955823          |
| 901     | 957082 | 955847 | 957082          |
| 902     | 957902 | 957270 | 957902          |
| 903     | 959231 | 957906 | 959231          |
| 904     | 959376 | 960284 | 959376          |
| 905     | 960266 | 961669 | 960347          |
| 906     | 961856 | 964765 | 961856          |
| 907     | 966855 | 965395 | 966855          |
| 908     | 968204 | 966975 | 968204          |
| 909     | 968791 | 968237 | 968791          |
| 910     | 969498 | 968731 | 969498          |
| 911     | 969858 | 969511 | 969858          |
| 912     | 970118 | 969762 | 970118          |
| 913     | 970593 | 970300 | 970593          |
| 914     | 971261 | 970542 | 971261          |
| 915     | 971680 | 971123 | 971680          |
| 916     | 971876 | 975100 | 971876          |
| 917     | 975419 | 976516 | 975419          |
| 918     | 976584 | 978320 | 976584          |

| ORF Nos | begin   | end     | potential start |
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| 919     | 977680  | 977231  | 977680          |
| 920     | 978399  | 980738  | 978399          |
| 921     | 980756  | 981928  | 980756          |
| 922     | 982974  | 981931  | 982962          |
| 923     | 984120  | 983119  | 984120          |
| 924     | 985502  | 984120  | 985502          |
| 925     | 987180  | 985882  | 987180          |
| 926     | 987172  | 987444  | 987172          |
| 927     | 989846  | 989049  | 989846          |
| 928     | 991048  | 989846  | 991048          |
| 929     | 991638  | 990955  | 991638          |
| 930     | 991794  | 992498  | 991794          |
| 931     | 993619  | 993041  | 993619          |
| 932     | 993530  | 994792  | 993548          |
| 933     | 995970  | 994795  | 995970          |
| 934     | 996857  | 995739  | 996857          |
| 935     | 997603  | 996782  | 997603          |
| 936     | 998969  | 997572  | 998969          |
| 937     | 998896  | 1000023 | 998896          |
| 938     | 1000087 | 1001340 | 1000087         |
| 939     | 1001357 | 1001818 | 1001357         |
| 940     | 1003288 | 1001873 | 1003288         |
| 941     | 1003487 | 1004146 | 1003496         |
| 942     | 1004485 | 1005639 | 1004689         |
| 943     | 1005643 | 1005972 | 1005643         |
| 944     | 1006784 | 1006116 | 1006784         |
| 945     | 1007563 | 1006769 | 1007563         |
| 946     | 1009226 | 1007568 | 1009226         |
| 947     | 1009989 | 1009336 | 1009989         |
| 948     | 1015852 | 1016337 | 1015852         |
| 949     | 1016561 | 1016181 | 1016561         |
| 950     | 1016297 | 1017532 | 1016297         |
| 951     | 1016802 | 1016452 | 1016802         |
| 952     | 1018993 | 1017701 | 1018993         |

| ORF Nos | begin   | end     | potential start |
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| 953     | 1019454 | 1019137 | 1019454         |
| 954     | 1020764 | 1019562 | 1020764         |
| 955     | 1021405 | 1021037 | 1021405         |
| 956     | 1021821 | 1024286 | 1021821         |
| 957     | 1024697 | 1024248 | 1024697         |
| 958     | 1025569 | 1024508 | 1025551         |
| 959     | 1026969 | 1025590 | 1026969         |
| 960     | 1027789 | 1026947 | 1027789         |
| 961     | 1031199 | 1027945 | 1031199         |
| 962     | 1031717 | 1031172 | 1031717         |
| 963     | 1033057 | 1031612 | 1033057         |
| 964     | 1033425 | 1033039 | 1033425         |
| 965     | 1033784 | 1033200 | 1033784         |
| 966     | 1033963 | 1036038 | 1033963         |
| 967     | 1036945 | 1036010 | 1036945         |
| 968     | 1037110 | 1037679 | 1037110         |
| 969     | 1037696 | 1037944 | 1037696         |
| 970     | 1038916 | 1037975 | 1038916         |
| 971     | 1040582 | 1039026 | 1040582         |
| 972     | 1040997 | 1042337 | 1040997         |
| 973     | 1042357 | 1043403 | 1042357         |
| 974     | 1043367 | 1044623 | 1043367         |
| 975     | 1044607 | 1045362 | 1044607         |
| 976     | 1045384 | 1046538 | 1045384         |
| 977     | 1046447 | 1047517 | 1046447         |
| 978     | 1047521 | 1049956 | 1047521         |
| 979     | 1050611 | 1050036 | 1050611         |
| 980     | 1050925 | 1050566 | 1050925         |
| 981     | 1051728 | 1051090 | 1051728         |
| 982     | 1051743 | 1052063 | 1051743         |
| 983     | 1052101 | 1053126 | 1052101         |
| 984     | 1054201 | 1053107 | 1054201         |
| 985     | 1054242 | 1055555 | 1054242         |
| 986     | 1055483 | 1055908 | 1055483         |

| ORF Nos | begin   | end     | potential start |
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| 987     | 1056609 | 1056965 | 1056609         |
| 988     | 1056961 | 1058232 | 1056985         |
| 989     | 1058238 | 1058687 | 1058238         |
| 990     | 1059371 | 1058727 | 1059371         |
| 991     | 1059526 | 1060578 | 1059526         |
| 992     | 1061553 | 1060579 | 1061553         |
| 993     | 1061674 | 1062411 | 1061674         |
| 994     | 1062377 | 1064077 | 1062377         |
| 995     | 1064116 | 1065243 | 1064116         |
| 996     | 1067451 | 1065178 | 1067451         |
| 997     | 1068065 | 1067376 | 1068065         |
| 998     | 1068209 | 1068706 | 1068230         |
| 999     | 1069958 | 1068819 | 1069958         |
| 1000    | 1071163 | 1070033 | 1071163         |
| 1001    | 1072438 | 1071332 | 1072438         |
| 1002    | 1072997 | 1073476 | 1072997         |
| 1003    | 1074239 | 1075864 | 1074239         |
| 1004    | 1076790 | 1075867 | 1076790         |
| 1005    | 1077268 | 1076573 | 1077268         |
| 1006    | 1077999 | 1078724 | 1077999         |
| 1007    | 1079088 | 1078672 | 1079088         |
| 1008    | 1079642 | 1079944 | 1079642         |
| 1009    | 1080501 | 1079995 | 1080468         |
| 1010    | 1080775 | 1081341 | 1080775         |
| 1011    | 1083158 | 1081350 | 1083158         |
| 1012    | 1084677 | 1083235 | 1084677         |
| 1013    | 1085648 | 1084632 | 1085648         |
| 1014    | 1086117 | 1086737 | 1086117         |
| 1015    | 1086692 | 1087897 | 1086692         |
| 1016    | 1088646 | 1089005 | 1088646         |
| 1017    | 1089146 | 1089805 | 1089146         |
| 1018    | 1092931 | 1089890 | 1092931         |
| 1019    | 1093179 | 1092889 | 1093179         |
| 1020    | 1093584 | 1094204 | 1093584         |

| ORF Nos | begin   | end     | potential start |
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| 1021    | 1095619 | 1094192 | 1095619         |
| 1022    | 1096074 | 1096628 | 1096074         |
| 1023    | 1096633 | 1097082 | 1096633         |
| 1024    | 1097266 | 1097601 | 1097266         |
| 1025    | 1097622 | 1097867 | 1097622         |
| 1026    | 1097886 | 1098392 | 1097886         |
| 1027    | 1099521 | 1099279 | 1099521         |
| 1028    | 1099689 | 1101053 | 1099704         |
| 1029    | 1102192 | 1101107 | 1102192         |
| 1030    | 1104950 | 1102116 | 1104950         |
| 1031    | 1106508 | 1104946 | 1106508         |
| 1032    | 1106722 | 1107249 | 1106722         |
| 1033    | 1107463 | 1108101 | 1107463         |
| 1034    | 1108041 | 1108421 | 1108041         |
| 1035    | 1108520 | 1113370 | 1108520         |
| 1036    | 1114958 | 1113447 | 1114958         |
| 1037    | 1116915 | 1115071 | 1116915         |
| 1038    | 1118183 | 1116894 | 1118183         |
| 1039    | 1118846 | 1120030 | 1118846         |
| 1040    | 1120040 | 1120522 | 1120040         |
| 1041    | 1120510 | 1121430 | 1120510         |
| 1042    | 1121321 | 1121866 | 1121321         |
| 1043    | 1122123 | 1122899 | 1122123         |
| 1044    | 1124842 | 1125564 | 1124842         |
| 1045    | 1126526 | 1125579 | 1126526         |
| 1046    | 1126519 | 1127676 | 1126519         |
| 1047    | 1127672 | 1128571 | 1127672         |
| 1048    | 1130230 | 1131336 | 1130230         |
| 1049    | 1131480 | 1132553 | 1131480         |
| 1050    | 1132830 | 1133843 | 1132830         |
| 1051    | 1134121 | 1134855 | 1134121         |
| 1052    | 1134642 | 1135592 | 1134642         |
| 1053    | 1135964 | 1135653 | 1135964         |
| 1054    | 1137132 | 1135954 | 1137132         |



| ORF Nos | begin   | end     | potential start |
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| 1055    | 1137169 | 1140102 | 1137169         |
| 1056    | 1141365 | 1140112 | 1141344         |
| 1057    | 1142150 | 1141356 | 1142150         |
| 1058    | 1142520 | 1145660 | 1142520         |
| 1059    | 1145627 | 1146721 | 1145627         |
| 1060    | 1146862 | 1147545 | 1146862         |
| 1061    | 1147666 | 1148190 | 1147666         |
| 1062    | 1148514 | 1148224 | 1148514         |
| 1063    | 1149136 | 1148348 | 1149136         |
| 1064    | 1149702 | 1149166 | 1149702         |
| 1065    | 1150031 | 1150591 | 1150031         |
| 1066    | 1150785 | 1151147 | 1150785         |
| 1067    | 1151165 | 1152181 | 1151165         |
| 1068    | 1152522 | 1154591 | 1152522         |
| 1069    | 1155666 | 1154566 | 1155666         |
| 1070    | 1156743 | 1155670 | 1156740         |
| 1071    | 1156859 | 1157815 | 1156859         |
| 1072    | 1157982 | 1160735 | 1157982         |
| 1073    | 1162620 | 1160917 | 1162620         |
| 1074    | 1162970 | 1162590 | 1162970         |
| 1075    | 1163532 | 1164020 | 1163532         |
| 1076    | 1163995 | 1164294 | 1163995         |
| 1077    | 1165569 | 1165030 | 1165569         |
| 1078    | 1166108 | 1165566 | 1166108         |
| 1079    | 1166644 | 1166141 | 1166644         |
| 1080    | 1167055 | 1168374 | 1167055         |
| 1081    | 1169218 | 1168337 | 1169218         |
| 1082    | 1169823 | 1169218 | 1169823         |
| 1083    | 1171324 | 1170572 | 1171324         |
| 1084    | 1172085 | 1171177 | 1172085         |
| 1085    | 1172394 | 1173773 | 1172394         |
| 1086    | 1175209 | 1173881 | 1175209         |
| 1087    | 1175555 | 1175127 | 1175360         |
| 1088    | 1175778 | 1177043 | 1175778         |

| ORF Nos | begin   | end     | potential start |
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| 1089    | 1177177 | 1179048 | 1177177         |
| 1090    | 1179156 | 1180085 | 1179156         |
| 1091    | 1180045 | 1180779 | 1180045         |
| 1092    | 1181942 | 1180788 | 1181942         |
| 1093    | 1182296 | 1181961 | 1182296         |
| 1094    | 1183844 | 1182300 | 1183844         |
| 1095    | 1184420 | 1183848 | 1184420         |
| 1096    | 1185382 | 1184366 | 1185382         |
| 1097    | 1185858 | 1185226 | 1185858         |
| 1098    | 1186164 | 1186481 | 1186185         |
| 1099    | 1187386 | 1186484 | 1187386         |
| 1100    | 1187370 | 1189028 | 1187370         |
| 1101    | 1189321 | 1190889 | 1189321         |
| 1102    | 1191142 | 1192146 | 1191142         |
| 1103    | 1191974 | 1191729 | 1191974         |
| 1104    | 1193815 | 1192991 | 1193815         |
| 1105    | 1195702 | 1194248 | 1195702         |
| 1106    | 1196303 | 1195716 | 1196303         |
| 1107    | 1196831 | 1196337 | 1196831         |
| 1108    | 1197807 | 1196746 | 1197651         |
| 1109    | 1198740 | 1197883 | 1198668         |
| 1110    | 1200232 | 1198721 | 1200232         |
| 1111    | 1201286 | 1200135 | 1201286         |
| 1112    | 1202386 | 1201259 | 1202350         |
| 1113    | 1202901 | 1202350 | 1202901         |
| 1114    | 1204162 | 1202816 | 1204162         |
| 1115    | 1203177 | 1203464 | 1203177         |
| 1116    | 1205028 | 1204180 | 1205028         |
| 1117    | 1206392 | 1204878 | 1206392         |
| 1118    | 1206742 | 1206086 | 1206742         |
| 1119    | 1207872 | 1206724 | 1207872         |
| 1120    | 1208852 | 1207851 | 1208852         |
| 1121    | 1210518 | 1209742 | 1210518         |
| 1122    | 1210703 | 1211494 | 1210703         |

| ORF Nos | begin   | end     | potential start |
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| 1123    | 1211870 | 1212754 | 1211870         |
| 1124    | 1212742 | 1214064 | 1212742         |
| 1125    | 1214046 | 1214858 | 1214046         |
| 1126    | 1215551 | 1216318 | 1215551         |
| 1127    | 1216493 | 1216849 | 1216493         |
| 1128    | 1217183 | 1219612 | 1217183         |
| 1129    | 1220068 | 1219673 | 1220068         |
| 1130    | 1219710 | 1220669 | 1219710         |
| 1131    | 1220630 | 1221376 | 1220630         |
| 1132    | 1221645 | 1223681 | 1221645         |
| 1133    | 1223894 | 1224988 | 1223900         |
| 1134    | 1225000 | 1225830 | 1225000         |
| 1135    | 1227810 | 1225879 | 1227810         |
| 1136    | 1226528 | 1226908 | 1226528         |
| 1137    | 1229972 | 1228311 | 1229972         |
| 1138    | 47569   | 47018   | 47569           |
| 1139    | 49980   | 49117   | 49980           |
| 1140    | 53356   | 52898   | 53356           |
| 1141    | 54477   | 54884   | 54477           |
| 1142    | 63753   | 63998   | 63753           |
| 1143    | 77164   | 77487   | 77164           |
| 1144    | 79724   | 79302   | 79724           |
| 1145    | 88721   | 88951   | 88721           |
| 1146    | 94067   | 94429   | 94067           |
| 1147    | 122832  | 123341  | 122832          |
| 1148    | 147536  | 147234  | 147536          |
| 1149    | 158990  | 159346  | 158990          |
| 1150    | 168470  | 168979  | 168470          |
| 1151    | 169183  | 169452  | 169204          |
| 1152    | 171785  | 171504  | 171785          |
| 1153    | 172518  | 171775  | 172518          |
| 1154    | 193599  | 194045  | 193599          |
| 1155    | 195704  | 196075  | 195704          |
| 1156    | 210687  | 210145  | 210684          |

| ORF Nos | begin  | end    | potential start |
|---------|--------|--------|-----------------|
| 1157    | 211100 | 210708 | 211100          |
| 1158    | 215420 | 215088 | 215420          |
| 1159    | 217914 | 218246 | 217914          |
| 1160    | 218925 | 218701 | 218925          |
| 1161    | 223785 | 223525 | 223785          |
| 1162    | 224271 | 223999 | 224271          |
| 1163    | 228691 | 228407 | 228691          |
| 1164    | 235050 | 235334 | 235050          |
| 1165    | 252308 | 253021 | 252308          |
| 1166    | 258280 | 258912 | 258280          |
| 1167    | 261325 | 261567 | 261325          |
| 1168    | 268195 | 268878 | 268195          |
| 1169    | 269447 | 268881 | 269447          |
| 1170    | 271263 | 271538 | 271263          |
| 1171    | 271957 | 272346 | 271957          |
| 1172    | 274176 | 274550 | 274176          |
| 1173    | 275736 | 275314 | 275736          |
| 1174    | 276490 | 276927 | 276490          |
| 1175    | 277577 | 277861 | 277577          |
| 1176    | 288163 | 287909 | 288163          |
| 1177    | 290130 | 289789 | 290130          |
| 1178    | 290989 | 291225 | 290989          |
| 1179    | 291372 | 291860 | 291372          |
| 1180    | 311239 | 311622 | 311239          |
| 1181    | 328665 | 328384 | 328665          |
| 1182    | 337348 | 338289 | 337348          |
| 1183    | 364764 | 364369 | 364764          |
| 1184    | 389623 | 390135 | 389623          |
| 1185    | 393729 | 394343 | 393729          |
| 1186    | 407379 | 407621 | 407379          |
| 1187    | 410944 | 410708 | 410944          |
| 1188    | 427632 | 427988 | 427632          |
| 1189    | 428172 | 428486 | 428172          |
| 1190    | 436761 | 437246 | 436761          |

| ORF Nos | begin  | end    | potential start |
|---------|--------|--------|-----------------|
| 1191    | 460911 | 461159 | 460911          |
| 1192    | 477597 | 477313 | 477597          |
| 1193    | 487303 | 487001 | 487303          |
| 1194    | 487764 | 487534 | 487764          |
| 1195    | 498502 | 499017 | 498502          |
| 1196    | 499795 | 500466 | 499795          |
| 1197    | 571928 | 572344 | 571928          |
| 1198    | 572367 | 572131 | 572367          |
| 1199    | 588184 | 587915 | 588184          |
| 1200    | 600587 | 600907 | 600587          |
| 1201    | 609731 | 608895 | 609731          |
| 1202    | 614039 | 614755 | 614039          |
| 1203    | 614823 | 615152 | 614823          |
| 1204    | 638244 | 638831 | 638244          |
| 1205    | 638819 | 639094 | 638819          |
| 1206    | 639073 | 639636 | 639073          |
| 1207    | 647901 | 648236 | 647901          |
| 1208    | 678510 | 679469 | 678510          |
| 1209    | 688178 | 688732 | 688178          |
| 1210    | 696045 | 696563 | 696045          |
| 1211    | 708998 | 708588 | 708998          |
| 1212    | 709808 | 710089 | 709808          |
| 1213    | 718240 | 717737 | 718240          |
| 1214    | 737828 | 737565 | 737828          |
| 1215    | 779502 | 780257 | 779502          |
| 1216    | 806310 | 805864 | 806310          |
| 1217    | 820931 | 820707 | 820931          |
| 1218    | 837696 | 839096 | 837696          |
| 1219    | 883307 | 883549 | 883307          |
| 1220    | 892010 | 891726 | 892010          |
| 1221    | 893277 | 893564 | 893277          |
| 1222    | 936998 | 937225 | 936998          |
| 1223    | 946865 | 947419 | 946865          |
| 1224    | 975187 | 975411 | 975187          |

| ORF Nos | begin   | end     | potential start |
|---------|---------|---------|-----------------|
| 1225    | 985882  | 985517  | 985882          |
| 1226    | 987713  | 987180  | 987713          |
| 1227    | 988215  | 987733  | 988215          |
| 1228    | 988754  | 988530  | 988754          |
| 1229    | 992542  | 992841  | 992542          |
| 1230    | 992759  | 993067  | 992759          |
| 1231    | 1004247 | 1004528 | 1004268         |
| 1232    | 1015013 | 1014294 | 1015013         |
| 1233    | 1056147 | 1056545 | 1056147         |
| 1234    | 1077682 | 1078035 | 1077682         |
| 1235    | 1088121 | 1088381 | 1088121         |
| 1236    | 1098430 | 1098852 | 1098430         |
| 1237    | 1098798 | 1099319 | 1098798         |
| 1238    | 1123198 | 1123515 | 1123198         |
| 1239    | 1123606 | 1124256 | 1123606         |
| 1240    | 1124453 | 1124797 | 1124453         |
| 1241    | 1129253 | 1129567 | 1129253         |
| 1242    | 1164947 | 1164474 | 1164947         |
| 1243    | 1170457 | 1170053 | 1170457         |
| 1244    | 1172342 | 1171863 | 1172342         |
| 1245    | 1192155 | 1192835 | 1192155         |
| 1246    | 1192759 | 1192992 | 1192759         |
| 1247    | 1193861 | 1194142 | 1193861         |
| 1248    | 1194036 | 1193779 | 1194036         |
| 1249    | 1209748 | 1209053 | 1209748         |
| 1250    | 1215111 | 1215419 | 1215111         |
| 1251    | 1216302 | 1216538 | 1216302         |
| 1252    | 1228072 | 1227818 | 1228072         |
| 1253    | 1228304 | 1228080 | 1228304         |
| 1254    | 26599   | 26222   | 26599           |
| 1255    | 27609   | 27367   | 27609           |
| 1256    | 67206   | 66967   | 67197           |
| 1257    | 70612   | 70352   | 70588           |
| 1258    | 132703  | 132945  | 132703          |

| ORF Nos | begin   | end     | potential start |
|---------|---------|---------|-----------------|
| 1259    | 178073  | 178393  | 178073          |
| 1260    | 208576  | 208349  | 208576          |
| 1261    | 209156  | 208929  | 209156          |
| 1262    | 209263  | 209024  | 209263          |
| 1263    | 210304  | 210639  | 210304          |
| 1264    | 299009  | 299452  | 299030          |
| 1265    | 352106  | 351717  | 352061          |
| 1266    | 420182  | 419949  | 420170          |
| 1267    | 553602  | 553381  | 553602          |
| 1268    | 556538  | 556807  | 556538          |
| 1269    | 594348  | 593797  | 594342          |
| 1270    | 595169  | 594876  | 595160          |
| 1271    | 662148  | 662381  | 662160          |
| 1272    | 706528  | 706893  | 706528          |
| 1273    | 803315  | 803650  | 803339          |
| 1274    | 849551  | 849306  | 849551          |
| 1275    | 913676  | 913275  | 913676          |
| 1276    | 927087  | 926836  | 927087          |
| 1277    | 930587  | 930360  | 930587          |
| 1278    | 986531  | 986764  | 986531          |
| 1279    | 996229  | 996486  | 996229          |
| 1280    | 1000373 | 1000002 | 1000334         |
| 1281    | 1010291 | 1010037 | 1010273         |
| 1282    | 1011128 | 1010793 | 1011128         |
| 1283    | 1012924 | 1012694 | 1012924         |
| 1284    | 1028659 | 1028913 | 1028659         |
| 1285    | 1086481 | 1086762 | 1086481         |
| 1286    | 1118658 | 1118879 | 1118658         |
| 1287    | 1170098 | 1169835 | 1170098         |
| 1288    | 1180828 | 1181184 | 1180828         |
| 1289    | 1182658 | 1183035 | 1182658         |
| 1290    | 1195076 | 1194795 | 1195055         |
| 1291    | 1195890 | 1196183 | 1195890         |
| 1292    | 189042  | 188809  | 189030          |

| ORF Nos | begin   | end     | potential start |
|---------|---------|---------|-----------------|
| 1293    | 691250  | 691567  | 691250          |
| 1294    | 914544  | 914780  | 914556          |
| 1295    | 928525  | 928833  | 928579          |
| 1296    | 1040685 | 1040948 | 1040712         |
| 1297    | 377646  | 378068  | 377646          |



**Table 4**

| <i>SEQ ID NO (ORF)</i> | <i>Fp</i> | <i>Fd</i> | <i>Bp</i> | <i>Bd</i> |
|------------------------|-----------|-----------|-----------|-----------|
| 2                      | 1292      | 1293      | 3796      | 3797      |
| 3                      | 1294      | 1295      | 3798      | 3799      |
| 4                      | 1296      | 1297      | 3800      | 3801      |
| 5                      | 1298      | 1299      | 3802      | 3803      |
| 6                      | 1300      | 1301      | 3804      | 3805      |
| 7                      | 1302      | 1303      | 3806      | 3807      |
| 8                      | 1304      | 1305      | 3808      | 3809      |
| 9                      | 1306      | 1307      | 3810      | 3811      |
| 10                     | 1308      | 1309      | 3812      | 3813      |
| 11                     | 1310      | 1311      | 3814      | 3815      |
| 12                     | 1312      | 1313      | 3816      | 3817      |
| 13                     | 1314      | 1315      | 3818      | 3819      |
| 14                     | 1316      | 1317      | 3820      | 3821      |
| 15                     | 1318      | 1319      | 3822      | 3823      |
| 16                     | 1320      | 1321      | 3824      | 3825      |
| 17                     | 1322      | 1323      | 3826      | 3827      |
| 18                     | 1324      | 1325      | 3828      | 3829      |
| 19                     | 1326      | 1327      | 3830      | 3831      |
| 20                     | 1328      | 1329      | 3832      | 3833      |
| 21                     | 1330      | 1331      | 3834      | 3835      |
| 22                     | 1332      | 1333      | 3836      | 3837      |
| 23                     | 1334      | 1335      | 3838      | 3839      |
| 24                     | 1336      | 1337      | 3840      | 3841      |
| 25                     | 1338      | 1339      | 3842      | 3843      |
| 26                     | 1340      | 1341      | 3844      | 3845      |
| 27                     | 1342      | 1343      | 3846      | 3847      |
| 28                     | 1344      | 1345      | 3848      | 3849      |
| 29                     | 1346      | 1347      | 3850      | 3851      |
| 30                     | 1348      | 1349      | 3852      | 3853      |
| 31                     | 1350      | 1351      | 3854      | 3855      |
| 32                     | 1352      | 1353      | 3856      | 3857      |
| 33                     | 1354      | 1355      | 3858      | 3859      |
| 34                     | 1358      | 1359      | 3862      | 3863      |

|    |      |      |      |      |
|----|------|------|------|------|
| 35 | 1356 | 1357 | 3860 | 3861 |
| 36 | 1360 | 1361 | 3864 | 3865 |
| 37 | 1362 | 1363 | 3866 | 3867 |
| 38 | 1364 | 1365 | 3868 | 3869 |
| 39 | 1366 | 1367 | 3870 | 3871 |
| 40 | 1368 | 1369 | 3872 | 3873 |
| 41 | 1370 | 1371 | 3874 | 3875 |
| 42 | 1374 | 1375 | 3878 | 3879 |
| 43 | 1376 | 1377 | 3880 | 3881 |
| 44 | 1380 | 1381 | 3884 | 3885 |
| 45 | 1382 | 1383 | 3886 | 3887 |
| 46 | 1386 | 1387 | 3890 | 3891 |
| 47 | 1388 | 1389 | 3892 | 3893 |
| 48 | 1392 | 1393 | 3896 | 3897 |
| 49 | 1394 | 1395 | 3898 | 3899 |
| 50 | 1396 | 1397 | 3900 | 3901 |
| 51 | 1398 | 1399 | 3902 | 3903 |
| 52 | 1402 | 1403 | 3906 | 3907 |
| 53 | 1400 | 1401 | 3904 | 3905 |
| 54 | 1404 | 1405 | 3908 | 3909 |
| 55 | 1406 | 1407 | 3910 | 3911 |
| 56 | 1410 | 1411 | 3914 | 3915 |
| 57 | 1412 | 1413 | 3916 | 3917 |
| 58 | 1414 | 1415 | 3918 | 3919 |
| 59 | 1416 | 1417 | 3920 | 3921 |
| 60 | 1418 | 1419 | 3922 | 3923 |
| 61 | 1420 | 1421 | 3924 | 3925 |
| 62 | 1422 | 1423 | 3926 | 3927 |
| 63 | 1424 | 1425 | 3928 | 3929 |
| 64 | 1426 | 1427 | 3930 | 3931 |
| 65 | 1428 | 1429 | 3932 | 3933 |
| 66 | 1430 | 1431 | 3934 | 3935 |
| 67 | 1432 | 1433 | 3936 | 3937 |
| 68 | 1434 | 1435 | 3938 | 3939 |
| 69 | 1438 | 1439 | 3942 | 3943 |

|     |      |      |      |      |
|-----|------|------|------|------|
| 70  | 1440 | 1441 | 3944 | 3945 |
| 71  | 1444 | 1445 | 3948 | 3949 |
| 72  | 1446 | 1447 | 3950 | 3951 |
| 73  | 1448 | 1449 | 3952 | 3953 |
| 74  | 1450 | 1451 | 3954 | 3955 |
| 75  | 1452 | 1453 | 3956 | 3957 |
| 76  | 1454 | 1455 | 3958 | 3959 |
| 77  | 1456 | 1457 | 3960 | 3961 |
| 78  | 1458 | 1459 | 3962 | 3963 |
| 79  | 1460 | 1461 | 3964 | 3965 |
| 80  | 1462 | 1463 | 3966 | 3967 |
| 81  | 1464 | 1465 | 3968 | 3969 |
| 82  | 1468 | 1469 | 3972 | 3973 |
| 83  | 1470 | 1471 | 3974 | 3975 |
| 84  | 1472 | 1473 | 3976 | 3977 |
| 85  | 1476 | 1477 | 3980 | 3981 |
| 86  | 1478 | 1479 | 3982 | 3983 |
| 87  | 1480 | 1481 | 3984 | 3985 |
| 88  | 1482 | 1483 | 3986 | 3987 |
| 89  | 1484 | 1485 | 3988 | 3989 |
| 90  | 1486 | 1487 | 3990 | 3991 |
| 91  | 1488 | 1489 | 3992 | 3993 |
| 92  | 1490 | 1491 | 3994 | 3995 |
| 93  | 1492 | 1493 | 3996 | 3997 |
| 94  | 1494 | 1495 | 3998 | 3999 |
| 95  | 1496 | 1497 | 4000 | 4001 |
| 96  | 1498 | 1499 | 4002 | 4003 |
| 97  | 1500 | 1501 | 4004 | 4005 |
| 98  | 1502 | 1503 | 4006 | 4007 |
| 99  | 1504 | 1505 | 4008 | 4009 |
| 100 | 1506 | 1507 | 4010 | 4011 |
| 101 | 1508 | 1509 | 4012 | 4013 |
| 102 | 1510 | 1511 | 4014 | 4015 |
| 103 | 1512 | 1513 | 4016 | 4017 |
| 104 | 1514 | 1515 | 4018 | 4019 |

|     |      |      |      |      |
|-----|------|------|------|------|
| 105 | 1516 | 1517 | 4020 | 4021 |
| 106 | 1518 | 1519 | 4022 | 4023 |
| 107 | 1520 | 1521 | 4024 | 4025 |
| 108 | 1522 | 1523 | 4026 | 4027 |
| 109 | 1524 | 1525 | 4028 | 4029 |
| 110 | 1526 | 1527 | 4030 | 4031 |
| 111 | 1530 | 1531 | 4034 | 4035 |
| 112 | 1532 | 1533 | 4036 | 4037 |
| 113 | 1534 | 1535 | 4038 | 4039 |
| 114 | 1536 | 1537 | 4040 | 4041 |
| 115 | 1538 | 1539 | 4042 | 4043 |
| 116 | 1540 | 1541 | 4044 | 4045 |
| 117 | 1542 | 1543 | 4046 | 4047 |
| 118 | 1544 | 1545 | 4048 | 4049 |
| 119 | 1546 | 1547 | 4050 | 4051 |
| 120 | 1548 | 1549 | 4052 | 4053 |
| 121 | 1550 | 1551 | 4054 | 4055 |
| 122 | 1552 | 1553 | 4056 | 4057 |
| 123 | 1554 | 1555 | 4058 | 4059 |
| 124 | 1556 | 1557 | 4060 | 4061 |
| 125 | 1558 | 1559 | 4062 | 4063 |
| 126 | 1562 | 1563 | 4066 | 4067 |
| 127 | 1564 | 1565 | 4068 | 4069 |
| 128 | 1566 | 1567 | 4070 | 4071 |
| 129 | 1568 | 1569 | 4072 | 4073 |
| 130 | 1570 | 1571 | 4074 | 4075 |
| 131 | 1572 | 1573 | 4076 | 4077 |
| 132 | 1574 | 1575 | 4078 | 4079 |
| 133 | 1576 | 1577 | 4080 | 4081 |
| 134 | 1580 | 1581 | 4084 | 4085 |
| 135 | 1582 | 1583 | 4086 | 4087 |
| 136 | 1584 | 1585 | 4088 | 4089 |
| 137 | 1586 | 1587 | 4090 | 4091 |
| 138 | 1588 | 1589 | 4092 | 4093 |
| 139 | 1590 | 1591 | 4094 | 4095 |

|     |      |      |      |      |
|-----|------|------|------|------|
| 140 | 1592 | 1593 | 4096 | 4097 |
| 141 | 1594 | 1595 | 4098 | 4099 |
| 142 | 1596 | 1597 | 4100 | 4101 |
| 143 | 1598 | 1599 | 4102 | 4103 |
| 144 | 1604 | 1605 | 4108 | 4109 |
| 145 | 1606 | 1607 | 4110 | 4111 |
| 146 | 1612 | 1613 | 4116 | 4117 |
| 147 | 1614 | 1615 | 4118 | 4119 |
| 148 | 1616 | 1617 | 4120 | 4121 |
| 149 | 1618 | 1619 | 4122 | 4123 |
| 150 | 1620 | 1621 | 4124 | 4125 |
| 151 | 1624 | 1625 | 4128 | 4129 |
| 152 | 1622 | 1623 | 4126 | 4127 |
| 153 | 1626 | 1627 | 4130 | 4131 |
| 154 | 1628 | 1629 | 4132 | 4133 |
| 155 | 1630 | 1631 | 4134 | 4135 |
| 156 | 1632 | 1633 | 4136 | 4137 |
| 157 | 1634 | 1635 | 4138 | 4139 |
| 158 | 1636 | 1637 | 4140 | 4141 |
| 159 | 1638 | 1639 | 4142 | 4143 |
| 160 | 1640 | 1641 | 4144 | 4145 |
| 161 | 1642 | 1643 | 4146 | 4147 |
| 162 | 1644 | 1645 | 4148 | 4149 |
| 163 | 1646 | 1647 | 4150 | 4151 |
| 164 | 1648 | 1649 | 4152 | 4153 |
| 165 | 1650 | 1651 | 4154 | 4155 |
| 166 | 1652 | 1653 | 4156 | 4157 |
| 167 | 1656 | 1657 | 4160 | 4161 |
| 168 | 1658 | 1659 | 4162 | 4163 |
| 169 | 1662 | 1663 | 4166 | 4167 |
| 170 | 1664 | 1665 | 4168 | 4169 |
| 171 | 1666 | 1667 | 4170 | 4171 |
| 172 | 1668 | 1669 | 4172 | 4173 |
| 173 | 1670 | 1671 | 4174 | 4175 |
| 174 | 1672 | 1673 | 4176 | 4177 |

|     |      |      |      |      |
|-----|------|------|------|------|
| 175 | 1674 | 1675 | 4178 | 4179 |
| 176 | 1676 | 1677 | 4180 | 4181 |
| 177 | 1678 | 1679 | 4182 | 4183 |
| 178 | 1684 | 1685 | 4188 | 4189 |
| 179 | 1686 | 1687 | 4190 | 4191 |
| 180 | 1688 | 1689 | 4192 | 4193 |
| 181 | 1690 | 1691 | 4194 | 4195 |
| 182 | 1694 | 1695 | 4198 | 4199 |
| 183 | 1696 | 1697 | 4200 | 4201 |
| 184 | 1698 | 1699 | 4202 | 4203 |
| 185 | 1700 | 1701 | 4204 | 4205 |
| 186 | 1704 | 1705 | 4208 | 4209 |
| 187 | 1708 | 1709 | 4212 | 4213 |
| 188 | 1710 | 1711 | 4214 | 4215 |
| 189 | 1712 | 1713 | 4216 | 4217 |
| 190 | 1714 | 1715 | 4218 | 4219 |
| 191 | 1720 | 1721 | 4224 | 4225 |
| 192 | 1722 | 1723 | 4226 | 4227 |
| 193 | 1724 | 1725 | 4228 | 4229 |
| 194 | 1726 | 1727 | 4230 | 4231 |
| 195 | 1728 | 1729 | 4232 | 4233 |
| 196 | 1732 | 1733 | 4236 | 4237 |
| 197 | 1734 | 1735 | 4238 | 4239 |
| 198 | 1736 | 1737 | 4240 | 4241 |
| 199 | 1738 | 1739 | 4242 | 4243 |
| 200 | 1740 | 1741 | 4244 | 4245 |
| 201 | 1742 | 1743 | 4246 | 4247 |
| 202 | 1744 | 1745 | 4248 | 4249 |
| 203 | 1746 | 1747 | 4250 | 4251 |
| 204 | 1750 | 1751 | 4254 | 4255 |
| 205 | 1752 | 1753 | 4256 | 4257 |
| 206 | 1754 | 1755 | 4258 | 4259 |
| 207 | 1756 | 1757 | 4260 | 4261 |
| 208 | 1758 | 1759 | 4262 | 4263 |
| 209 | 1760 | 1761 | 4264 | 4265 |

|     |      |      |      |      |
|-----|------|------|------|------|
| 210 | 1762 | 1763 | 4266 | 4267 |
| 211 | 1764 | 1765 | 4268 | 4269 |
| 212 | 1766 | 1767 | 4270 | 4271 |
| 213 | 1768 | 1769 | 4272 | 4273 |
| 214 | 1770 | 1771 | 4274 | 4275 |
| 215 | 1772 | 1773 | 4276 | 4277 |
| 216 | 1774 | 1775 | 4278 | 4279 |
| 217 | 1776 | 1777 | 4280 | 4281 |
| 218 | 1778 | 1779 | 4282 | 4283 |
| 219 | 1782 | 1783 | 4286 | 4287 |
| 220 | 1784 | 1785 | 4288 | 4289 |
| 221 | 1786 | 1787 | 4290 | 4291 |
| 222 | 1788 | 1789 | 4292 | 4293 |
| 223 | 1790 | 1791 | 4294 | 4295 |
| 224 | 1792 | 1793 | 4296 | 4297 |
| 225 | 1796 | 1797 | 4300 | 4301 |
| 226 | 1800 | 1801 | 4304 | 4305 |
| 227 | 1802 | 1803 | 4306 | 4307 |
| 228 | 1804 | 1805 | 4308 | 4309 |
| 229 | 1806 | 1807 | 4310 | 4311 |
| 230 | 1808 | 1809 | 4312 | 4313 |
| 231 | 1810 | 1811 | 4314 | 4315 |
| 232 | 1812 | 1813 | 4316 | 4317 |
| 233 | 1818 | 1819 | 4322 | 4323 |
| 234 | 1824 | 1825 | 4328 | 4329 |
| 235 | 1826 | 1827 | 4330 | 4331 |
| 236 | 1828 | 1829 | 4332 | 4333 |
| 237 | 1834 | 1835 | 4338 | 4339 |
| 238 | 1836 | 1837 | 4340 | 4341 |
| 239 | 1840 | 1841 | 4344 | 4345 |
| 240 | 1842 | 1843 | 4346 | 4347 |
| 241 | 1846 | 1847 | 4350 | 4351 |
| 242 | 1848 | 1849 | 4352 | 4353 |
| 243 | 1850 | 1851 | 4354 | 4355 |
| 244 | 1852 | 1853 | 4356 | 4357 |

|     |      |      |      |      |
|-----|------|------|------|------|
| 245 | 1854 | 1855 | 4358 | 4359 |
| 246 | 1856 | 1857 | 4360 | 4361 |
| 247 | 1858 | 1859 | 4362 | 4363 |
| 248 | 1860 | 1861 | 4364 | 4365 |
| 249 | 1862 | 1863 | 4366 | 4367 |
| 250 | 1864 | 1865 | 4368 | 4369 |
| 251 | 1866 | 1867 | 4370 | 4371 |
| 252 | 1868 | 1869 | 4372 | 4373 |
| 253 | 1872 | 1873 | 4376 | 4377 |
| 254 | 1876 | 1877 | 4380 | 4381 |
| 255 | 1874 | 1875 | 4378 | 4379 |
| 256 | 1878 | 1879 | 4382 | 4383 |
| 257 | 1886 | 1887 | 4390 | 4391 |
| 258 | 1888 | 1889 | 4392 | 4393 |
| 259 | 1890 | 1891 | 4394 | 4395 |
| 260 | 1892 | 1893 | 4396 | 4397 |
| 261 | 1896 | 1897 | 4400 | 4401 |
| 262 | 1894 | 1895 | 4398 | 4399 |
| 263 | 1898 | 1899 | 4402 | 4403 |
| 264 | 1900 | 1901 | 4404 | 4405 |
| 265 | 1902 | 1903 | 4406 | 4407 |
| 266 | 1904 | 1905 | 4408 | 4409 |
| 267 | 1906 | 1907 | 4410 | 4411 |
| 268 | 1908 | 1909 | 4412 | 4413 |
| 269 | 1910 | 1911 | 4414 | 4415 |
| 270 | 1912 | 1913 | 4416 | 4417 |
| 271 | 1914 | 1915 | 4418 | 4419 |
| 272 | 1916 | 1917 | 4420 | 4421 |
| 273 | 1918 | 1919 | 4422 | 4423 |
| 274 | 1920 | 1921 | 4424 | 4425 |
| 275 | 1922 | 1923 | 4426 | 4427 |
| 276 | 1924 | 1925 | 4428 | 4429 |
| 277 | 1926 | 1927 | 4430 | 4431 |
| 278 | 1928 | 1929 | 4432 | 4433 |
| 279 | 1930 | 1931 | 4434 | 4435 |



|     |      |      |      |      |
|-----|------|------|------|------|
| 280 | 1934 | 1935 | 4438 | 4439 |
| 281 | 1936 | 1937 | 4440 | 4441 |
| 282 | 1938 | 1939 | 4442 | 4443 |
| 283 | 1940 | 1941 | 4444 | 4445 |
| 284 | 1942 | 1943 | 4446 | 4447 |
| 285 | 1944 | 1945 | 4448 | 4449 |
| 286 | 1946 | 1947 | 4450 | 4451 |
| 287 | 1948 | 1949 | 4452 | 4453 |
| 288 | 1950 | 1951 | 4454 | 4455 |
| 289 | 1952 | 1953 | 4456 | 4457 |
| 290 | 1954 | 1955 | 4458 | 4459 |
| 291 | 1956 | 1957 | 4460 | 4461 |
| 292 | 1958 | 1959 | 4462 | 4463 |
| 293 | 1960 | 1961 | 4464 | 4465 |
| 294 | 1962 | 1963 | 4466 | 4467 |
| 295 | 1964 | 1965 | 4468 | 4469 |
| 296 | 1966 | 1967 | 4470 | 4471 |
| 297 | 1970 | 1971 | 4474 | 4475 |
| 298 | 1972 | 1973 | 4476 | 4477 |
| 299 | 1974 | 1975 | 4478 | 4479 |
| 300 | 1976 | 1977 | 4480 | 4481 |
| 301 | 1978 | 1979 | 4482 | 4483 |
| 302 | 1980 | 1981 | 4484 | 4485 |
| 303 | 1984 | 1985 | 4488 | 4489 |
| 304 | 1986 | 1987 | 4490 | 4491 |
| 305 | 1988 | 1989 | 4492 | 4493 |
| 306 | 1990 | 1991 | 4494 | 4495 |
| 307 | 1992 | 1993 | 4496 | 4497 |
| 308 | 1994 | 1995 | 4498 | 4499 |
| 309 | 1996 | 1997 | 4500 | 4501 |
| 310 | 1998 | 1999 | 4502 | 4503 |
| 311 | 2000 | 2001 | 4504 | 4505 |
| 312 | 2002 | 2003 | 4506 | 4507 |
| 313 | 2004 | 2005 | 4508 | 4509 |
| 314 | 2006 | 2007 | 4510 | 4511 |

|     |      |      |      |      |
|-----|------|------|------|------|
| 315 | 2008 | 2009 | 4512 | 4513 |
| 316 | 2010 | 2011 | 4514 | 4515 |
| 317 | 2012 | 2013 | 4516 | 4517 |
| 318 | 2014 | 2015 | 4518 | 4519 |
| 319 | 2016 | 2017 | 4520 | 4521 |
| 320 | 2018 | 2019 | 4522 | 4523 |
| 321 | 2020 | 2021 | 4524 | 4525 |
| 322 | 2022 | 2023 | 4526 | 4527 |
| 323 | 2026 | 2027 | 4530 | 4531 |
| 324 | 2024 | 2025 | 4528 | 4529 |
| 325 | 2028 | 2029 | 4532 | 4533 |
| 326 | 2030 | 2031 | 4534 | 4535 |
| 327 | 2032 | 2033 | 4536 | 4537 |
| 328 | 2034 | 2035 | 4538 | 4539 |
| 329 | 2038 | 2039 | 4542 | 4543 |
| 330 | 2040 | 2041 | 4544 | 4545 |
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| 336 | 2052 | 2053 | 4556 | 4557 |
| 337 | 2054 | 2055 | 4558 | 4559 |
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| 339 | 2058 | 2059 | 4562 | 4563 |
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| 346 | 2072 | 2073 | 4576 | 4577 |
| 347 | 2074 | 2075 | 4578 | 4579 |
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| 349 | 2078 | 2079 | 4582 | 4583 |

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| 351 | 2082 | 2083 | 4586 | 4587 |
| 352 | 2084 | 2085 | 4588 | 4589 |
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| 354 | 2090 | 2091 | 4594 | 4595 |
| 355 | 2092 | 2093 | 4596 | 4597 |
| 356 | 2094 | 2095 | 4598 | 4599 |
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| 384 | 2156 | 2157 | 4660 | 4661 |

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| 388 | 2164 | 2165 | 4668 | 4669 |
| 389 | 2170 | 2171 | 4674 | 4675 |
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| 524 | 2458 | 2459 | 4962 | 4963 |

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| 526 | 2462 | 2463 | 4966 | 4967 |
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| 567 | 2554 | 2555 | 5058 | 5059 |
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| 590 | 2606 | 2607 | 5110 | 5111 |
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| 594 | 2616 | 2617 | 5120 | 5121 |

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| 596 | 2620 | 2621 | 5124 | 5125 |
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| 599 | 2626 | 2627 | 5130 | 5131 |
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| 601 | 2630 | 2631 | 5134 | 5135 |
| 602 | 2632 | 2633 | 5136 | 5137 |
| 603 | 2634 | 2635 | 5138 | 5139 |
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| 605 | 2638 | 2639 | 5142 | 5143 |
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| 607 | 2642 | 2643 | 5146 | 5147 |
| 608 | 2644 | 2645 | 5148 | 5149 |
| 609 | 2646 | 2647 | 5150 | 5151 |
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| 612 | 2652 | 2653 | 5156 | 5157 |
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| 617 | 2662 | 2663 | 5166 | 5167 |
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| 619 | 2666 | 2667 | 5170 | 5171 |
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| 623 | 2678 | 2679 | 5182 | 5183 |
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| 664 | 2768 | 2769 | 5272 | 5273 |

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| 1176 | 1870 | 1871 | 4374 | 4375 |
| 1177 | 1880 | 1881 | 4384 | 4385 |
| 1178 | 1882 | 1883 | 4386 | 4387 |
| 1179 | 1884 | 1885 | 4388 | 4389 |
| 1180 | 1932 | 1933 | 4436 | 4437 |
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| 1182 | 1982 | 1983 | 4486 | 4487 |
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| 1184 | 2086 | 2087 | 4590 | 4591 |
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| 1198 | 2452 | 2453 | 4956 | 4957 |
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|      |      |      |      |      |
|------|------|------|------|------|
| 1225 | 3312 | 3313 | 5816 | 5817 |
| 1226 | 3318 | 3319 | 5822 | 5823 |
| 1227 | 3320 | 3321 | 5824 | 5825 |
| 1228 | 3322 | 3323 | 5826 | 5827 |
| 1229 | 3332 | 3333 | 5836 | 5837 |
| 1230 | 3334 | 3335 | 5838 | 5839 |
| 1231 | 3358 | 3359 | 5862 | 5863 |
| 1232 | 3372 | 3373 | 5876 | 5877 |
| 1233 | 3452 | 3453 | 5956 | 5957 |
| 1234 | 3492 | 3493 | 5996 | 5997 |
| 1235 | 3514 | 3515 | 6018 | 6019 |
| 1236 | 3538 | 3539 | 6042 | 6043 |
| 1237 | 3540 | 3541 | 6044 | 6045 |
| 1238 | 3576 | 3577 | 6080 | 6081 |
| 1239 | 3578 | 3579 | 6082 | 6083 |
| 1240 | 3580 | 3581 | 6084 | 6085 |
| 1241 | 3590 | 3591 | 6094 | 6095 |
| 1242 | 3650 | 3651 | 6154 | 6155 |
| 1243 | 3664 | 3665 | 6168 | 6169 |
| 1244 | 3670 | 3671 | 6174 | 6175 |
| 1245 | 3710 | 3711 | 6214 | 6215 |
| 1246 | 3712 | 3713 | 6216 | 6217 |
| 1247 | 3716 | 3717 | 6220 | 6221 |
| 1248 | 3718 | 3719 | 6222 | 6223 |
| 1249 | 3752 | 3753 | 6256 | 6257 |
| 1250 | 3764 | 3765 | 6268 | 6269 |
| 1251 | 3768 | 3769 | 6272 | 6273 |
| 1252 | 3790 | 3791 | 6294 | 6295 |
| 1253 | 3792 | 3793 | 6296 | 6297 |
| 1254 | 6300 | 6301 | 6376 | 6377 |
| 1255 | 6302 | 6303 | 6378 | 6379 |
| 1256 | 6304 | 6305 | 6380 | 6381 |
| 1257 | 6306 | 6307 | 6382 | 6383 |
| 1258 | 6308 | 6309 | 6384 | 6385 |
| 1259 | 6310 | 6311 | 6386 | 6387 |

|      |      |      |      |      |
|------|------|------|------|------|
| 1260 | 6312 | 6313 | 6388 | 6389 |
| 1261 | 6314 | 6315 | 6390 | 6391 |
| 1262 | 6316 | 6317 | 6392 | 6393 |
| 1263 | 6318 | 6319 | 6394 | 6395 |
| 1264 | 6320 | 6321 | 6396 | 6397 |
| 1265 | 6322 | 6323 | 6398 | 6399 |
| 1266 | 6324 | 6325 | 6400 | 6401 |
| 1267 | 6326 | 6327 | 6402 | 6403 |
| 1268 | 6328 | 6329 | 6404 | 6405 |
| 1269 | 6330 | 6331 | 6406 | 6407 |
| 1270 | 6332 | 6333 | 6408 | 6409 |
| 1271 | 6334 | 6335 | 6410 | 6411 |
| 1272 | 6336 | 6337 | 6412 | 6413 |
| 1273 | 6338 | 6339 | 6414 | 6415 |
| 1274 | 6340 | 6341 | 6416 | 6417 |
| 1275 | 6342 | 6343 | 6418 | 6419 |
| 1276 | 6344 | 6345 | 6420 | 6421 |
| 1277 | 6346 | 6347 | 6422 | 6423 |
| 1278 | 6348 | 6349 | 6424 | 6425 |
| 1279 | 6350 | 6351 | 6426 | 6427 |
| 1280 | 6352 | 6353 | 6428 | 6429 |
| 1281 | 6354 | 6355 | 6430 | 6431 |
| 1282 | 6356 | 6357 | 6432 | 6433 |
| 1283 | 6358 | 6359 | 6434 | 6435 |
| 1284 | 6360 | 6361 | 6436 | 6437 |
| 1285 | 6362 | 6363 | 6438 | 6439 |
| 1286 | 6364 | 6365 | 6440 | 6441 |
| 1287 | 6366 | 6367 | 6442 | 6443 |
| 1288 | 6368 | 6369 | 6444 | 6445 |
| 1289 | 6370 | 6371 | 6446 | 6447 |
| 1290 | 6372 | 6373 | 6448 | 6449 |
| 1291 | 6374 | 6375 | 6450 | 6451 |

TABLE 5

| <i>SEQ ID</i> | <i>or.</i> | <i>5'position</i> | <i>SEQ ID</i> | <i>or.</i> | <i>5'position</i> | <i>SEQ ID</i> | <i>or.</i> | <i>5'position</i> |
|---------------|------------|-------------------|---------------|------------|-------------------|---------------|------------|-------------------|
| 1292          | F          | 1229848           | 3012          | F          | 833844            | 4732          | B          | 455875            |
| 1293          | F          | 1227874           | 3013          | F          | 831936            | 4733          | B          | 457736            |
| 1294          | F          | 1018              | 3014          | F          | 834905            | 4734          | B          | 457231            |
| 1295          | F          | 1229162           | 3015          | F          | 832943            | 4735          | B          | 459146            |
| 1296          | F          | 1588              | 3016          | F          | 835834            | 4736          | B          | 458008            |
| 1297          | F          | 1229711           | 3017          | F          | 833938            | 4737          | B          | 459836            |
| 1298          | F          | 2253              | 3018          | F          | 837457            | 4738          | B          | 458598            |
| 1299          | F          | 369               | 3019          | F          | 835536            | 4739          | B          | 460488            |
| 1300          | F          | 3381              | 3020          | F          | 838723            | 4740          | B          | 459717            |
| 1301          | F          | 1508              | 3021          | F          | 836826            | 4741          | B          | 461652            |
| 1302          | F          | 4042              | 3022          | F          | 840649            | 4742          | B          | 460417            |
| 1303          | F          | 2126              | 3023          | F          | 838723            | 4743          | B          | 462365            |
| 1304          | F          | 5735              | 3024          | F          | 841751            | 4744          | B          | 461391            |
| 1305          | F          | 3843              | 3025          | F          | 839825            | 4745          | B          | 463286            |
| 1306          | F          | 7832              | 3026          | F          | 842960            | 4746          | B          | 461680            |
| 1307          | F          | 5909              | 3027          | F          | 841123            | 4747          | B          | 463584            |
| 1308          | F          | 8887              | 3028          | F          | 843765            | 4748          | B          | 462520            |
| 1309          | F          | 7010              | 3029          | F          | 841844            | 4749          | B          | 464418            |
| 1310          | F          | 10139             | 3030          | F          | 844768            | 4750          | B          | 463584            |
| 1311          | F          | 8175              | 3031          | F          | 842852            | 4751          | B          | 465539            |
| 1312          | F          | 10640             | 3032          | F          | 846089            | 4752          | B          | 464547            |
| 1313          | F          | 8799              | 3033          | F          | 844175            | 4753          | B          | 466398            |
| 1314          | F          | 10997             | 3034          | F          | 848293            | 4754          | B          | 465288            |
| 1315          | F          | 9037              | 3035          | F          | 846449            | 4755          | B          | 467243            |
| 1316          | F          | 12458             | 3036          | F          | 848867            | 4756          | B          | 465835            |
| 1317          | F          | 10572             | 3037          | F          | 846964            | 4757          | B          | 467738            |
| 1318          | F          | 14187             | 3038          | F          | 850351            | 4758          | B          | 466558            |
| 1319          | F          | 12365             | 3039          | F          | 848426            | 4759          | B          | 468474            |
| 1320          | F          | 15529             | 3040          | F          | 851788            | 4760          | B          | 467322            |
| 1321          | F          | 13629             | 3041          | F          | 849899            | 4761          | B          | 469217            |
| 1322          | F          | 17626             | 3042          | F          | 852166            | 4762          | B          | 467738            |
| 1323          | F          | 15699             | 3043          | F          | 850278            | 4763          | B          | 469637            |
| 1324          | F          | 20909             | 3044          | F          | 853976            | 4764          | B          | 469912            |

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|------|---|-------|------|---|--------|------|---|--------|
| 1325 | F | 19006 | 3045 | F | 852069 | 4765 | B | 471814 |
| 1326 | F | 21800 | 3046 | F | 854899 | 4766 | B | 470920 |
| 1327 | F | 19927 | 3047 | F | 853006 | 4767 | B | 472826 |
| 1328 | F | 23462 | 3048 | F | 855595 | 4768 | B | 472075 |
| 1329 | F | 21557 | 3049 | F | 853679 | 4769 | B | 473922 |
| 1330 | F | 25637 | 3050 | F | 856479 | 4770 | B | 472231 |
| 1331 | F | 23729 | 3051 | F | 854582 | 4771 | B | 474144 |
| 1332 | F | 25997 | 3052 | F | 858498 | 4772 | B | 472579 |
| 1333 | F | 24071 | 3053 | F | 856492 | 4773 | B | 474501 |
| 1334 | F | 26727 | 3054 | F | 859372 | 4774 | B | 473751 |
| 1335 | F | 24828 | 3055 | F | 857424 | 4775 | B | 475664 |
| 1336 | F | 27528 | 3056 | F | 860050 | 4776 | B | 475116 |
| 1337 | F | 25628 | 3057 | F | 858116 | 4777 | B | 477009 |
| 1338 | F | 28643 | 3058 | F | 860941 | 4778 | B | 477566 |
| 1339 | F | 26765 | 3059 | F | 859023 | 4779 | B | 479490 |
| 1340 | F | 29202 | 3060 | F | 861464 | 4780 | B | 477851 |
| 1341 | F | 27313 | 3061 | F | 859572 | 4781 | B | 479753 |
| 1342 | F | 29793 | 3062 | F | 862749 | 4782 | B | 478728 |
| 1343 | F | 27835 | 3063 | F | 860895 | 4783 | B | 480616 |
| 1344 | F | 31488 | 3064 | F | 864599 | 4784 | B | 479496 |
| 1345 | F | 29639 | 3065 | F | 862683 | 4785 | B | 481418 |
| 1346 | F | 31957 | 3066 | F | 865003 | 4786 | B | 479928 |
| 1347 | F | 30050 | 3067 | F | 863040 | 4787 | B | 481844 |
| 1348 | F | 33570 | 3068 | F | 866331 | 4788 | B | 481674 |
| 1349 | F | 31666 | 3069 | F | 864443 | 4789 | B | 483578 |
| 1350 | F | 34564 | 3070 | F | 866799 | 4790 | B | 482281 |
| 1351 | F | 32664 | 3071 | F | 864889 | 4791 | B | 484243 |
| 1352 | F | 35783 | 3072 | F | 867574 | 4792 | B | 482820 |
| 1353 | F | 33875 | 3073 | F | 865664 | 4793 | B | 484721 |
| 1354 | F | 37597 | 3074 | F | 868402 | 4794 | B | 484449 |
| 1355 | F | 35741 | 3075 | F | 866513 | 4795 | B | 486360 |
| 1356 | F | 39135 | 3076 | F | 869823 | 4796 | B | 485499 |
| 1357 | F | 37236 | 3077 | F | 867898 | 4797 | B | 487293 |
| 1358 | F | 38939 | 3078 | F | 870414 | 4798 | B | 486116 |
| 1359 | F | 37038 | 3079 | F | 868478 | 4799 | B | 487980 |

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|------|---|-------|------|---|--------|------|---|--------|
| 1360 | F | 40872 | 3080 | F | 871862 | 4800 | B | 486811 |
| 1361 | F | 38972 | 3081 | F | 869956 | 4801 | B | 488721 |
| 1362 | F | 42825 | 3082 | F | 872261 | 4802 | B | 487217 |
| 1363 | F | 40923 | 3083 | F | 870367 | 4803 | B | 489101 |
| 1364 | F | 43563 | 3084 | F | 874062 | 4804 | B | 487567 |
| 1365 | F | 41652 | 3085 | F | 872141 | 4805 | B | 489423 |
| 1366 | F | 44531 | 3086 | F | 874363 | 4806 | B | 487984 |
| 1367 | F | 42623 | 3087 | F | 872439 | 4807 | B | 489909 |
| 1368 | F | 45150 | 3088 | F | 875155 | 4808 | B | 489291 |
| 1369 | F | 43250 | 3089 | F | 873244 | 4809 | B | 491191 |
| 1370 | F | 45478 | 3090 | F | 878156 | 4810 | B | 489561 |
| 1371 | F | 43579 | 3091 | F | 876291 | 4811 | B | 491461 |
| 1372 | F | 46755 | 3092 | F | 879046 | 4812 | B | 490221 |
| 1373 | F | 44874 | 3093 | F | 877133 | 4813 | B | 492078 |
| 1374 | F | 47347 | 3094 | F | 880361 | 4814 | B | 490773 |
| 1375 | F | 45386 | 3095 | F | 878450 | 4815 | B | 492672 |
| 1376 | F | 47818 | 3096 | F | 882361 | 4816 | B | 491383 |
| 1377 | F | 45897 | 3097 | F | 880493 | 4817 | B | 493293 |
| 1378 | F | 48893 | 3098 | F | 883067 | 4818 | B | 491616 |
| 1379 | F | 46995 | 3099 | F | 881185 | 4819 | B | 493537 |
| 1380 | F | 49907 | 3100 | F | 883310 | 4820 | B | 492362 |
| 1381 | F | 48000 | 3101 | F | 881416 | 4821 | B | 494246 |
| 1382 | F | 51088 | 3102 | F | 884035 | 4822 | B | 495083 |
| 1383 | F | 49169 | 3103 | F | 882152 | 4823 | B | 497027 |
| 1384 | F | 52651 | 3104 | F | 885495 | 4824 | B | 496168 |
| 1385 | F | 50721 | 3105 | F | 883599 | 4825 | B | 498063 |
| 1386 | F | 53065 | 3106 | F | 887340 | 4826 | B | 496789 |
| 1387 | F | 51176 | 3107 | F | 885448 | 4827 | B | 498688 |
| 1388 | F | 53516 | 3108 | F | 887996 | 4828 | B | 497500 |
| 1389 | F | 51611 | 3109 | F | 886093 | 4829 | B | 499390 |
| 1390 | F | 54242 | 3110 | F | 888494 | 4830 | B | 498057 |
| 1391 | F | 52351 | 3111 | F | 886570 | 4831 | B | 499966 |
| 1392 | F | 55058 | 3112 | F | 889100 | 4832 | B | 498552 |
| 1393 | F | 53159 | 3113 | F | 887201 | 4833 | B | 500508 |
| 1394 | F | 56274 | 3114 | F | 889655 | 4834 | B | 499240 |



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|------|---|-------|
| 1395 | F | 54348 |
| 1396 | F | 57078 |
| 1397 | F | 55156 |
| 1398 | F | 58343 |
| 1399 | F | 56392 |
| 1400 | F | 61103 |
| 1401 | F | 59177 |
| 1402 | F | 59701 |
| 1403 | F | 57802 |
| 1404 | F | 61887 |
| 1405 | F | 59971 |
| 1406 | F | 62255 |
| 1407 | F | 60348 |
| 1408 | F | 63515 |
| 1409 | F | 61557 |
| 1410 | F | 63657 |
| 1411 | F | 61761 |
| 1412 | F | 64088 |
| 1413 | F | 62196 |
| 1414 | F | 64422 |
| 1415 | F | 62537 |
| 1416 | F | 65072 |
| 1417 | F | 63140 |
| 1418 | F | 65978 |
| 1419 | F | 64088 |
| 1420 | F | 67046 |
| 1421 | F | 65146 |
| 1422 | F | 67466 |
| 1423 | F | 65580 |
| 1424 | F | 68569 |
| 1425 | F | 66686 |
| 1426 | F | 68609 |
| 1427 | F | 66688 |
| 1428 | F | 70423 |
| 1429 | F | 68479 |

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| 3115 | F | 887776 |
| 3116 | F | 891025 |
| 3117 | F | 889105 |
| 3118 | F | 891504 |
| 3119 | F | 889593 |
| 3120 | F | 891795 |
| 3121 | F | 889841 |
| 3122 | F | 892279 |
| 3123 | F | 890400 |
| 3124 | F | 892182 |
| 3125 | F | 890288 |
| 3126 | F | 893010 |
| 3127 | F | 891139 |
| 3128 | F | 893101 |
| 3129 | F | 891211 |
| 3130 | F | 895494 |
| 3131 | F | 893599 |
| 3132 | F | 896448 |
| 3133 | F | 894511 |
| 3134 | F | 897341 |
| 3135 | F | 895442 |
| 3136 | F | 899197 |
| 3137 | F | 897279 |
| 3138 | F | 899999 |
| 3139 | F | 898075 |
| 3140 | F | 903008 |
| 3141 | F | 901103 |
| 3142 | F | 904798 |
| 3143 | F | 902923 |
| 3144 | F | 906993 |
| 3145 | F | 905129 |
| 3146 | F | 907564 |
| 3147 | F | 905665 |
| 3148 | F | 907913 |
| 3149 | F | 905998 |

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| 4836 | B | 499812 |
| 4837 | B | 501762 |
| 4838 | B | 500020 |
| 4839 | B | 501915 |
| 4840 | B | 500716 |
| 4841 | B | 502628 |
| 4842 | B | 504395 |
| 4843 | B | 506292 |
| 4844 | B | 504885 |
| 4845 | B | 506772 |
| 4846 | B | 507107 |
| 4847 | B | 509003 |
| 4848 | B | 507933 |
| 4849 | B | 509795 |
| 4850 | B | 510741 |
| 4851 | B | 512656 |
| 4852 | B | 508573 |
| 4853 | B | 510445 |
| 4854 | B | 513663 |
| 4855 | B | 515585 |
| 4856 | B | 515276 |
| 4857 | B | 517040 |
| 4858 | B | 517602 |
| 4859 | B | 519510 |
| 4860 | B | 517602 |
| 4861 | B | 519510 |
| 4862 | B | 518075 |
| 4863 | B | 519947 |
| 4864 | B | 518429 |
| 4865 | B | 520326 |
| 4866 | B | 521416 |
| 4867 | B | 523319 |
| 4868 | B | 523196 |
| 4869 | B | 525096 |

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|------|---|-------|
| 1430 | F | 71099 |
| 1431 | F | 69206 |
| 1432 | F | 71829 |
| 1433 | F | 69935 |
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| 1435 | F | 71931 |
| 1436 | F | 76942 |
| 1437 | F | 75022 |
| 1438 | F | 77404 |
| 1439 | F | 75556 |
| 1440 | F | 78133 |
| 1441 | F | 76192 |
| 1442 | F | 79079 |
| 1443 | F | 77122 |
| 1444 | F | 79471 |
| 1445 | F | 77481 |
| 1446 | F | 79670 |
| 1447 | F | 77816 |
| 1448 | F | 80236 |
| 1449 | F | 78356 |
| 1450 | F | 81108 |
| 1451 | F | 79182 |
| 1452 | F | 83024 |
| 1453 | F | 81158 |
| 1454 | F | 83786 |
| 1455 | F | 81886 |
| 1456 | F | 84739 |
| 1457 | F | 82821 |
| 1458 | F | 84866 |
| 1459 | F | 82967 |
| 1460 | F | 85175 |
| 1461 | F | 83240 |
| 1462 | F | 85690 |
| 1463 | F | 83790 |
| 1464 | F | 86397 |

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| 3151 | F | 906425 |
| 3152 | F | 909186 |
| 3153 | F | 907286 |
| 3154 | F | 911413 |
| 3155 | F | 909481 |
| 3156 | F | 912084 |
| 3157 | F | 910176 |
| 3158 | F | 912718 |
| 3159 | F | 910814 |
| 3160 | F | 913813 |
| 3161 | F | 911941 |
| 3162 | F | 915106 |
| 3163 | F | 913211 |
| 3164 | F | 915053 |
| 3165 | F | 913141 |
| 3166 | F | 916630 |
| 3167 | F | 914731 |
| 3168 | F | 917500 |
| 3169 | F | 915594 |
| 3170 | F | 918615 |
| 3171 | F | 916715 |
| 3172 | F | 919639 |
| 3173 | F | 917732 |
| 3174 | F | 920216 |
| 3175 | F | 918312 |
| 3176 | F | 920971 |
| 3177 | F | 919057 |
| 3178 | F | 921889 |
| 3179 | F | 920015 |
| 3180 | F | 921773 |
| 3181 | F | 919871 |
| 3182 | F | 923428 |
| 3183 | F | 921546 |
| 3184 | F | 923841 |

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| 4870 | B | 525033 |
| 4871 | B | 526939 |
| 4872 | B | 524599 |
| 4873 | B | 526501 |
| 4874 | B | 526494 |
| 4875 | B | 528361 |
| 4876 | B | 527330 |
| 4877 | B | 529238 |
| 4878 | B | 527167 |
| 4879 | B | 529067 |
| 4880 | B | 528673 |
| 4881 | B | 530573 |
| 4882 | B | 529456 |
| 4883 | B | 531376 |
| 4884 | B | 530864 |
| 4885 | B | 532745 |
| 4886 | B | 531906 |
| 4887 | B | 533776 |
| 4888 | B | 534199 |
| 4889 | B | 536103 |
| 4890 | B | 536674 |
| 4891 | B | 538552 |
| 4892 | B | 537422 |
| 4893 | B | 539270 |
| 4894 | B | 538165 |
| 4895 | B | 540048 |
| 4896 | B | 538658 |
| 4897 | B | 540578 |
| 4898 | B | 538970 |
| 4899 | B | 540857 |
| 4900 | B | 539859 |
| 4901 | B | 541736 |
| 4902 | B | 541474 |
| 4903 | B | 543411 |
| 4904 | B | 542791 |

|      |   |        |      |   |        |      |   |        |
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| 1465 | F | 84507  | 3185 | F | 921936 | 4905 | B | 544691 |
| 1466 | F | 88470  | 3186 | F | 924795 | 4906 | B | 543234 |
| 1467 | F | 86563  | 3187 | F | 922945 | 4907 | B | 545134 |
| 1468 | F | 89038  | 3188 | F | 925102 | 4908 | B | 543608 |
| 1469 | F | 87121  | 3189 | F | 923188 | 4909 | B | 545513 |
| 1470 | F | 91017  | 3190 | F | 926130 | 4910 | B | 546851 |
| 1471 | F | 89146  | 3191 | F | 924248 | 4911 | B | 548762 |
| 1472 | F | 93075  | 3192 | F | 927729 | 4912 | B | 549793 |
| 1473 | F | 91147  | 3193 | F | 925829 | 4913 | B | 551652 |
| 1474 | F | 93846  | 3194 | F | 928112 | 4914 | B | 547523 |
| 1475 | F | 91948  | 3195 | F | 926130 | 4915 | B | 549430 |
| 1476 | F | 94410  | 3196 | F | 929014 | 4916 | B | 550754 |
| 1477 | F | 92561  | 3197 | F | 927129 | 4917 | B | 552702 |
| 1478 | F | 95447  | 3198 | F | 930776 | 4918 | B | 551775 |
| 1479 | F | 93541  | 3199 | F | 928876 | 4919 | B | 553674 |
| 1480 | F | 96074  | 3200 | F | 931898 | 4920 | B | 552876 |
| 1481 | F | 94197  | 3201 | F | 929987 | 4921 | B | 554756 |
| 1482 | F | 97706  | 3202 | F | 932291 | 4922 | B | 555340 |
| 1483 | F | 95841  | 3203 | F | 930323 | 4923 | B | 557240 |
| 1484 | F | 98142  | 3204 | F | 933264 | 4924 | B | 555736 |
| 1485 | F | 96292  | 3205 | F | 931339 | 4925 | B | 557619 |
| 1486 | F | 99925  | 3206 | F | 935505 | 4926 | B | 558229 |
| 1487 | F | 98011  | 3207 | F | 933605 | 4927 | B | 560135 |
| 1488 | F | 101229 | 3208 | F | 936779 | 4928 | B | 558821 |
| 1489 | F | 99338  | 3209 | F | 934873 | 4929 | B | 560696 |
| 1490 | F | 101429 | 3210 | F | 937000 | 4930 | B | 559955 |
| 1491 | F | 99552  | 3211 | F | 935108 | 4931 | B | 561816 |
| 1492 | F | 102137 | 3212 | F | 938062 | 4932 | B | 561979 |
| 1493 | F | 100237 | 3213 | F | 936162 | 4933 | B | 563858 |
| 1494 | F | 102600 | 3214 | F | 938536 | 4934 | B | 561979 |
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| 1569 | F | 152113 | 3289 | F | 968394 | 5009 | B | 600088 |

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| 1600 | F | 168243 |
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| 3318 | F | 986956 |
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| 5012 | B | 599476 |
| 5013 | B | 601327 |
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| 5016 | B | 601131 |
| 5017 | B | 603030 |
| 5018 | B | 602307 |
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| 1608 | F | 171229 | 3328 | F | 990733  | 5048 | B | 616565 |
| 1609 | F | 169381 | 3329 | F | 988783  | 5049 | B | 618402 |
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| 1611 | F | 169614 | 3331 | F | 989675  | 5051 | B | 619515 |
| 1612 | F | 172433 | 3332 | F | 992323  | 5052 | B | 619027 |
| 1613 | F | 170533 | 3333 | F | 990421  | 5053 | B | 620937 |
| 1614 | F | 173217 | 3334 | F | 992522  | 5054 | B | 620142 |
| 1615 | F | 171316 | 3335 | F | 990640  | 5055 | B | 622052 |
| 1616 | F | 174567 | 3336 | F | 993308  | 5056 | B | 620230 |
| 1617 | F | 172680 | 3337 | F | 991361  | 5057 | B | 622124 |
| 1618 | F | 175342 | 3338 | F | 992795  | 5058 | B | 621498 |
| 1619 | F | 173479 | 3339 | F | 990919  | 5059 | B | 623385 |
| 1620 | F | 175709 | 3340 | F | 994573  | 5060 | B | 622583 |
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| 1622 | F | 176909 | 3342 | F | 995517  | 5062 | B | 623718 |
| 1623 | F | 175009 | 3343 | F | 993570  | 5063 | B | 625598 |
| 1624 | F | 176704 | 3344 | F | 996518  | 5064 | B | 624533 |
| 1625 | F | 174761 | 3345 | F | 994660  | 5065 | B | 626462 |
| 1626 | F | 177608 | 3346 | F | 997317  | 5066 | B | 625020 |
| 1627 | F | 175709 | 3347 | F | 995450  | 5067 | B | 626893 |
| 1628 | F | 179259 | 3348 | F | 998653  | 5068 | B | 625774 |
| 1629 | F | 177384 | 3349 | F | 996762  | 5069 | B | 627660 |
| 1630 | F | 179719 | 3350 | F | 999865  | 5070 | B | 626146 |
| 1631 | F | 177800 | 3351 | F | 997908  | 5071 | B | 628010 |
| 1632 | F | 181629 | 3352 | F | 1001112 | 5072 | B | 626646 |
| 1633 | F | 179743 | 3353 | F | 999238  | 5073 | B | 628522 |
| 1634 | F | 182851 | 3354 | F | 1001651 | 5074 | B | 628020 |
| 1635 | F | 180952 | 3355 | F | 999731  | 5075 | B | 629982 |
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| 1637 | F | 182335 | 3357 | F | 1001317 | 5077 | B | 630730 |
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| 1642 | F | 185611 | 3362 | F | 1005400 | 5082 | B | 633774 |
| 1643 | F | 183685 | 3363 | F | 1003518 | 5083 | B | 635675 |
| 1644 | F | 186336 | 3364 | F | 1005892 | 5084 | B | 637192 |
| 1645 | F | 184445 | 3365 | F | 1003958 | 5085 | B | 639082 |
| 1646 | F | 188059 | 3366 | F | 1006516 | 5086 | B | 638321 |
| 1647 | F | 186171 | 3367 | F | 1004599 | 5087 | B | 640221 |
| 1648 | F | 190828 | 3368 | F | 1007332 | 5088 | B | 639082 |
| 1649 | F | 188956 | 3369 | F | 1005446 | 5089 | B | 640954 |
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| 1661 | F | 193585 | 3381 | F | 1014330 | 5101 | B | 644407 |
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| 1666 | F | 199088 | 3386 | F | 1019328 | 5106 | B | 643925 |
| 1667 | F | 197213 | 3387 | F | 1017440 | 5107 | B | 645837 |
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| 1669 | F | 200876 | 3389 | F | 1018915 | 5109 | B | 647759 |
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| 1672 | F | 205584 | 3392 | F | 1023996 | 5112 | B | 646490 |
| 1673 | F | 203664 | 3393 | F | 1022107 | 5113 | B | 648429 |
| 1674 | F | 206940 | 3394 | F | 1024277 | 5114 | B | 646973 |



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| 1675 | F | 205063 | 3395 | F | 1022385 | 5115 | B | 648871 |
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| 1679 | F | 206139 | 3399 | F | 1024821 | 5119 | B | 650374 |
| 1680 | F | 209923 | 3400 | F | 1027688 | 5120 | B | 650567 |
| 1681 | F | 208023 | 3401 | F | 1025823 | 5121 | B | 652472 |
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| 1688 | F | 212226 | 3408 | F | 1032978 | 5128 | B | 656010 |
| 1689 | F | 210311 | 3409 | F | 1031078 | 5129 | B | 657870 |
| 1690 | F | 213832 | 3410 | F | 1033730 | 5130 | B | 656761 |
| 1691 | F | 211960 | 3411 | F | 1031839 | 5131 | B | 658636 |
| 1692 | F | 214866 | 3412 | F | 1035774 | 5132 | B | 658389 |
| 1693 | F | 212921 | 3413 | F | 1033821 | 5133 | B | 660295 |
| 1694 | F | 215173 | 3414 | F | 1036884 | 5134 | B | 660436 |
| 1695 | F | 213307 | 3415 | F | 1034954 | 5135 | B | 662352 |
| 1696 | F | 215800 | 3416 | F | 1037476 | 5136 | B | 663483 |
| 1697 | F | 213957 | 3417 | F | 1035577 | 5137 | B | 665358 |
| 1698 | F | 216489 | 3418 | F | 1037714 | 5138 | B | 664701 |
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| 1701 | F | 215100 | 3421 | F | 1036884 | 5141 | B | 667856 |
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| 1703 | F | 215793 | 3423 | F | 1038856 | 5143 | B | 669172 |
| 1704 | F | 218039 | 3424 | F | 1042132 | 5144 | B | 668195 |
| 1705 | F | 216071 | 3425 | F | 1040216 | 5145 | B | 670046 |
| 1706 | F | 218476 | 3426 | F | 1043148 | 5146 | B | 668791 |
| 1707 | F | 216560 | 3427 | F | 1041215 | 5147 | B | 670691 |
| 1708 | F | 218769 | 3428 | F | 1044388 | 5148 | B | 669426 |
| 1709 | F | 216809 | 3429 | F | 1042445 | 5149 | B | 671326 |

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| 1710 | F | 220020 | 3430 | F | 1045164 | 5150 | B | 671116 |
| 1711 | F | 218128 | 3431 | F | 1043224 | 5151 | B | 673055 |
| 1712 | F | 221210 | 3432 | F | 1046223 | 5152 | B | 671659 |
| 1713 | F | 219275 | 3433 | F | 1044324 | 5153 | B | 673547 |
| 1714 | F | 222497 | 3434 | F | 1047299 | 5154 | B | 672474 |
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| 1717 | F | 221403 | 3437 | F | 1047914 | 5157 | B | 675140 |
| 1718 | F | 223775 | 3438 | F | 1050341 | 5158 | B | 674944 |
| 1719 | F | 221877 | 3439 | F | 1048431 | 5159 | B | 676911 |
| 1720 | F | 224250 | 3440 | F | 1050862 | 5160 | B | 674797 |
| 1721 | F | 222377 | 3441 | F | 1048907 | 5161 | B | 676669 |
| 1722 | F | 224906 | 3442 | F | 1051515 | 5162 | B | 675741 |
| 1723 | F | 223008 | 3443 | F | 1049572 | 5163 | B | 677643 |
| 1724 | F | 225283 | 3444 | F | 1051828 | 5164 | B | 676340 |
| 1725 | F | 223418 | 3445 | F | 1049917 | 5165 | B | 678204 |
| 1726 | F | 226670 | 3446 | F | 1052885 | 5166 | B | 676911 |
| 1727 | F | 224770 | 3447 | F | 1050957 | 5167 | B | 678770 |
| 1728 | F | 227849 | 3448 | F | 1053963 | 5168 | B | 677240 |
| 1729 | F | 225937 | 3449 | F | 1052057 | 5169 | B | 679136 |
| 1730 | F | 228185 | 3450 | F | 1055238 | 5170 | B | 677873 |
| 1731 | F | 226269 | 3451 | F | 1053362 | 5171 | B | 679767 |
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| 1733 | F | 226512 | 3453 | F | 1053963 | 5173 | B | 680420 |
| 1734 | F | 229334 | 3454 | F | 1056332 | 5174 | B | 679692 |
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| 1736 | F | 230761 | 3456 | F | 1056738 | 5176 | B | 680320 |
| 1737 | F | 228846 | 3457 | F | 1054830 | 5177 | B | 682220 |
| 1738 | F | 231287 | 3458 | F | 1058019 | 5178 | B | 681126 |
| 1739 | F | 229334 | 3459 | F | 1056110 | 5179 | B | 683046 |
| 1740 | F | 231731 | 3460 | F | 1058504 | 5180 | B | 682558 |
| 1741 | F | 229927 | 3461 | F | 1056587 | 5181 | B | 684404 |
| 1742 | F | 232865 | 3462 | F | 1059300 | 5182 | B | 681857 |
| 1743 | F | 231027 | 3463 | F | 1057406 | 5183 | B | 683768 |
| 1744 | F | 232865 | 3464 | F | 1060356 | 5184 | B | 683046 |

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| 1745 | F | 231027 | 3465 | F | 1058400 | 5185 | B | 684944 |
| 1746 | F | 234315 | 3466 | F | 1061455 | 5186 | B | 684128 |
| 1747 | F | 232394 | 3467 | F | 1059456 | 5187 | B | 686124 |
| 1748 | F | 234823 | 3468 | F | 1062092 | 5188 | B | 684893 |
| 1749 | F | 232865 | 3469 | F | 1060243 | 5189 | B | 686740 |
| 1750 | F | 235154 | 3470 | F | 1063884 | 5190 | B | 685389 |
| 1751 | F | 233245 | 3471 | F | 1061983 | 5191 | B | 687290 |
| 1752 | F | 236429 | 3472 | F | 1064928 | 5192 | B | 686207 |
| 1753 | F | 234520 | 3473 | F | 1063056 | 5193 | B | 688106 |
| 1754 | F | 237268 | 3474 | F | 1067125 | 5194 | B | 687534 |
| 1755 | F | 235271 | 3475 | F | 1065240 | 5195 | B | 689424 |
| 1756 | F | 238047 | 3476 | F | 1067963 | 5196 | B | 688416 |
| 1757 | F | 236162 | 3477 | F | 1066075 | 5197 | B | 690275 |
| 1758 | F | 238636 | 3478 | F | 1068596 | 5198 | B | 688955 |
| 1759 | F | 236736 | 3479 | F | 1066668 | 5199 | B | 690855 |
| 1760 | F | 239957 | 3480 | F | 1069752 | 5200 | B | 689727 |
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| 1762 | F | 241373 | 3482 | F | 1071068 | 5202 | B | 690496 |
| 1763 | F | 239482 | 3483 | F | 1069210 | 5203 | B | 692386 |
| 1764 | F | 242017 | 3484 | F | 1072701 | 5204 | B | 691349 |
| 1765 | F | 240072 | 3485 | F | 1070806 | 5205 | B | 693249 |
| 1766 | F | 242740 | 3486 | F | 1073987 | 5206 | B | 692864 |
| 1767 | F | 240829 | 3487 | F | 1072090 | 5207 | B | 694724 |
| 1768 | F | 243281 | 3488 | F | 1075643 | 5208 | B | 695287 |
| 1769 | F | 241373 | 3489 | F | 1073742 | 5209 | B | 697187 |
| 1770 | F | 244244 | 3490 | F | 1076350 | 5210 | B | 696275 |
| 1771 | F | 242345 | 3491 | F | 1074450 | 5211 | B | 698172 |
| 1772 | F | 246052 | 3492 | F | 1077354 | 5212 | B | 696786 |
| 1773 | F | 244179 | 3493 | F | 1075555 | 5213 | B | 698696 |
| 1774 | F | 247581 | 3494 | F | 1077778 | 5214 | B | 698185 |
| 1775 | F | 245697 | 3495 | F | 1075880 | 5215 | B | 700090 |
| 1776 | F | 249216 | 3496 | F | 1078445 | 5216 | B | 700037 |
| 1777 | F | 247244 | 3497 | F | 1076529 | 5217 | B | 701923 |
| 1778 | F | 251003 | 3498 | F | 1079373 | 5218 | B | 702172 |
| 1779 | F | 249137 | 3499 | F | 1077523 | 5219 | B | 704050 |

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| 1781 | F | 250189 |
| 1782 | F | 252900 |
| 1783 | F | 251000 |
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| 1787 | F | 253138 |
| 1788 | F | 256414 |
| 1789 | F | 254509 |
| 1790 | F | 257283 |
| 1791 | F | 255383 |
| 1792 | F | 257279 |
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| 1795 | F | 256107 |
| 1796 | F | 259005 |
| 1797 | F | 257128 |
| 1798 | F | 261075 |
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| 1800 | F | 261551 |
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| 1802 | F | 262535 |
| 1803 | F | 260611 |
| 1804 | F | 262960 |
| 1805 | F | 261060 |
| 1806 | F | 264509 |
| 1807 | F | 262614 |
| 1808 | F | 265837 |
| 1809 | F | 263925 |
| 1810 | F | 266239 |
| 1811 | F | 264367 |
| 1812 | F | 267185 |
| 1813 | F | 265286 |
| 1814 | F | 267909 |

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| 3532 | F | 1097047 |
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| 1816 | F | 268594 |
| 1817 | F | 266756 |
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| 1821 | F | 269121 |
| 1822 | F | 271737 |
| 1823 | F | 269838 |
| 1824 | F | 272558 |
| 1825 | F | 270645 |
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| 1827 | F | 271098 |
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| 1831 | F | 272057 |
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| 1840 | F | 276548 |
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| 1842 | F | 277098 |
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| 1847 | F | 275739 |
| 1848 | F | 278314 |
| 1849 | F | 276386 |

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| 3557 | F | 1105922 |
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| 3560 | F | 1113162 |
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| 3562 | F | 1114813 |
| 3563 | F | 1112949 |
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| 1873 | F | 286323 |
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| 1876 | F | 288273 |
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| 1878 | F | 289723 |
| 1879 | F | 287836 |
| 1880 | F | 289508 |
| 1881 | F | 287667 |
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| 1883 | F | 288858 |
| 1884 | F | 291142 |

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| 3581 | F | 1122333 |
| 3582 | F | 1124623 |
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| 5304 | B | 737802 |
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| 1885 | F | 289253 | 3605 | F | 1133823 | 5325 | B | 746234 |
| 1886 | F | 291702 | 3606 | F | 1136932 | 5326 | B | 744824 |
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| 1888 | F | 292522 | 3608 | F | 1139875 | 5328 | B | 745207 |
| 1889 | F | 290633 | 3609 | F | 1137942 | 5329 | B | 747073 |
| 1890 | F | 293035 | 3610 | F | 1141133 | 5330 | B | 746828 |
| 1891 | F | 291142 | 3611 | F | 1139231 | 5331 | B | 748738 |
| 1892 | F | 293731 | 3612 | F | 1142301 | 5332 | B | 747344 |
| 1893 | F | 291786 | 3613 | F | 1140366 | 5333 | B | 749206 |
| 1894 | F | 294530 | 3614 | F | 1145346 | 5334 | B | 748253 |
| 1895 | F | 292670 | 3615 | F | 1143505 | 5335 | B | 750094 |
| 1896 | F | 294367 | 3616 | F | 1146637 | 5336 | B | 748856 |
| 1897 | F | 292513 | 3617 | F | 1144743 | 5337 | B | 750717 |
| 1898 | F | 296092 | 3618 | F | 1147417 | 5338 | B | 749376 |
| 1899 | F | 294209 | 3619 | F | 1145547 | 5339 | B | 751265 |
| 1900 | F | 297611 | 3620 | F | 1147981 | 5340 | B | 750180 |
| 1901 | F | 295757 | 3621 | F | 1146086 | 5341 | B | 752086 |
| 1902 | F | 298027 | 3622 | F | 1148126 | 5342 | B | 750667 |
| 1903 | F | 296092 | 3623 | F | 1146211 | 5343 | B | 752569 |
| 1904 | F | 298555 | 3624 | F | 1148913 | 5344 | B | 751458 |
| 1905 | F | 296582 | 3625 | F | 1147044 | 5345 | B | 753343 |
| 1906 | F | 299403 | 3626 | F | 1149702 | 5346 | B | 753262 |
| 1907 | F | 297511 | 3627 | F | 1147890 | 5347 | B | 755162 |
| 1908 | F | 300409 | 3628 | F | 1150561 | 5348 | B | 754535 |
| 1909 | F | 298579 | 3629 | F | 1148660 | 5349 | B | 756429 |
| 1910 | F | 301332 | 3630 | F | 1150946 | 5350 | B | 756398 |
| 1911 | F | 299433 | 3631 | F | 1149046 | 5351 | B | 758298 |
| 1912 | F | 302215 | 3632 | F | 1152302 | 5352 | B | 756708 |
| 1913 | F | 300282 | 3633 | F | 1150392 | 5353 | B | 758611 |
| 1914 | F | 302492 | 3634 | F | 1154344 | 5354 | B | 760465 |
| 1915 | F | 300618 | 3635 | F | 1152371 | 5355 | B | 762358 |
| 1916 | F | 303627 | 3636 | F | 1155448 | 5356 | B | 761441 |
| 1917 | F | 301730 | 3637 | F | 1153548 | 5357 | B | 763356 |
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| 1919 | F | 302487 | 3639 | F | 1154729 | 5359 | B | 763945 |

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| 1920 | F | 305173 |
| 1921 | F | 303226 |
| 1922 | F | 306244 |
| 1923 | F | 304350 |
| 1924 | F | 307232 |
| 1925 | F | 305310 |
| 1926 | F | 307799 |
| 1927 | F | 305877 |
| 1928 | F | 309173 |
| 1929 | F | 307301 |
| 1930 | F | 310158 |
| 1931 | F | 308306 |
| 1932 | F | 311020 |
| 1933 | F | 309118 |
| 1934 | F | 311031 |
| 1935 | F | 309126 |
| 1936 | F | 311552 |
| 1937 | F | 309658 |
| 1938 | F | 312510 |
| 1939 | F | 310614 |
| 1940 | F | 313134 |
| 1941 | F | 311255 |
| 1942 | F | 313674 |
| 1943 | F | 311717 |
| 1944 | F | 314490 |
| 1945 | F | 312633 |
| 1946 | F | 315306 |
| 1947 | F | 313355 |
| 1948 | F | 315932 |
| 1949 | F | 314033 |
| 1950 | F | 318434 |
| 1951 | F | 316516 |
| 1952 | F | 320876 |
| 1953 | F | 318949 |
| 1954 | F | 321403 |

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| 3649 | F | 1161842 |
| 3650 | F | 1164224 |
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| 3667 | F | 1168446 |
| 3668 | F | 1170953 |
| 3669 | F | 1169031 |
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| 5370 | B | 767041 |
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| 5373 | B | 770171 |
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| 1955 | F | 319547 | 3675 | F | 1171759 | 5395 | B | 779200 |
| 1956 | F | 322084 | 3676 | F | 1174885 | 5396 | B | 778224 |
| 1957 | F | 320217 | 3677 | F | 1172999 | 5397 | B | 780087 |
| 1958 | F | 322911 | 3678 | F | 1175559 | 5398 | B | 778396 |
| 1959 | F | 321049 | 3679 | F | 1173649 | 5399 | B | 780301 |
| 1960 | F | 323634 | 3680 | F | 1176927 | 5400 | B | 779557 |
| 1961 | F | 321726 | 3681 | F | 1175025 | 5401 | B | 781481 |
| 1962 | F | 325117 | 3682 | F | 1178912 | 5402 | B | 780503 |
| 1963 | F | 323211 | 3683 | F | 1176985 | 5403 | B | 782380 |
| 1964 | F | 326213 | 3684 | F | 1179826 | 5404 | B | 781419 |
| 1965 | F | 324254 | 3685 | F | 1177910 | 5405 | B | 783311 |
| 1966 | F | 327607 | 3686 | F | 1180498 | 5406 | B | 781747 |
| 1967 | F | 325695 | 3687 | F | 1178666 | 5407 | B | 783680 |
| 1968 | F | 328162 | 3688 | F | 1181716 | 5408 | B | 783004 |
| 1969 | F | 326262 | 3689 | F | 1179839 | 5409 | B | 784912 |
| 1970 | F | 328630 | 3690 | F | 1182069 | 5410 | B | 783820 |
| 1971 | F | 326723 | 3691 | F | 1180140 | 5411 | B | 785752 |
| 1972 | F | 329134 | 3692 | F | 1183626 | 5412 | B | 785255 |
| 1973 | F | 327178 | 3693 | F | 1181716 | 5413 | B | 787155 |
| 1974 | F | 330734 | 3694 | F | 1184128 | 5414 | B | 786655 |
| 1975 | F | 328810 | 3695 | F | 1182244 | 5415 | B | 788572 |
| 1976 | F | 332123 | 3696 | F | 1185004 | 5416 | B | 788671 |
| 1977 | F | 330252 | 3697 | F | 1183084 | 5417 | B | 790554 |
| 1978 | F | 334575 | 3698 | F | 1185897 | 5418 | B | 789164 |
| 1979 | F | 332660 | 3699 | F | 1184029 | 5419 | B | 791064 |
| 1980 | F | 335884 | 3700 | F | 1187151 | 5420 | B | 790001 |
| 1981 | F | 333980 | 3701 | F | 1185251 | 5421 | B | 791900 |
| 1982 | F | 337129 | 3702 | F | 1186262 | 5422 | B | 791734 |
| 1983 | F | 335202 | 3703 | F | 1184361 | 5423 | B | 793679 |
| 1984 | F | 337910 | 3704 | F | 1189054 | 5424 | B | 792944 |
| 1985 | F | 335955 | 3705 | F | 1187160 | 5425 | B | 794875 |
| 1986 | F | 338746 | 3706 | F | 1190885 | 5426 | B | 793809 |
| 1987 | F | 336795 | 3707 | F | 1188990 | 5427 | B | 795692 |
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| 2019 | F | 352871 |
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| 2872 | F | 768329 | 4592 | B | 391202 | 6312 | F | 208127 |
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| 2938 | F | 799558 | 4658 | B | 422291 | 6378 | B | 27835   |
| 2939 | F | 797649 | 4659 | B | 424158 | 6379 | B | 29730   |
| 2940 | F | 801106 | 4660 | B | 423186 | 6380 | B | 67456   |
| 2941 | F | 799204 | 4661 | B | 425075 | 6381 | B | 69351   |
| 2942 | F | 802227 | 4662 | B | 424544 | 6382 | B | 70820   |
| 2943 | F | 800325 | 4663 | B | 426443 | 6383 | B | 72708   |
| 2944 | F | 803050 | 4664 | B | 424859 | 6384 | B | 133173  |
| 2945 | F | 801153 | 4665 | B | 426714 | 6385 | B | 135068  |
| 2946 | F | 803599 | 4666 | B | 426302 | 6386 | B | 178637  |
| 2947 | F | 801682 | 4667 | B | 428193 | 6387 | B | 180518  |
| 2948 | F | 804925 | 4668 | B | 427640 | 6388 | B | 208864  |
| 2949 | F | 803016 | 4669 | B | 429523 | 6389 | B | 210727  |
| 2950 | F | 805633 | 4670 | B | 428212 | 6390 | B | 209376  |
| 2951 | F | 803672 | 4671 | B | 430111 | 6391 | B | 211305  |
| 2952 | F | 806109 | 4672 | B | 428709 | 6392 | B | 209483  |
| 2953 | F | 804192 | 4673 | B | 430627 | 6393 | B | 211383  |
| 2954 | F | 806386 | 4674 | B | 430926 | 6394 | B | 210875  |
| 2955 | F | 804453 | 4675 | B | 432851 | 6395 | B | 212766  |
| 2956 | F | 806668 | 4676 | B | 431681 | 6396 | B | 299694  |
| 2957 | F | 804746 | 4677 | B | 433569 | 6397 | B | 301582  |
| 2958 | F | 807924 | 4678 | B | 432324 | 6398 | B | 352312  |
| 2959 | F | 806022 | 4679 | B | 434223 | 6399 | B | 354200  |
| 2960 | F | 808445 | 4680 | B | 433015 | 6400 | B | 420390  |
| 2961 | F | 806525 | 4681 | B | 434902 | 6401 | B | 422291  |
| 2962 | F | 809212 | 4682 | B | 433504 | 6402 | B | 553822  |
| 2963 | F | 807283 | 4683 | B | 435426 | 6403 | B | 555736  |
| 2964 | F | 809982 | 4684 | B | 434196 | 6404 | B | 557050  |
| 2965 | F | 808079 | 4685 | B | 436042 | 6405 | B | 558930  |
| 2966 | F | 811554 | 4686 | B | 436913 | 6406 | B | 594583  |
| 2967 | F | 809659 | 4687 | B | 438807 | 6407 | B | 596527  |
| 2968 | F | 812268 | 4688 | B | 437475 | 6408 | B | 595405  |
| 2969 | F | 810340 | 4689 | B | 439423 | 6409 | B | 597289  |

|      |   |        |      |   |        |      |   |         |
|------|---|--------|------|---|--------|------|---|---------|
| 2970 | F | 812712 | 4690 | B | 438591 | 6410 | B | 662614  |
| 2971 | F | 810799 | 4691 | B | 440490 | 6411 | B | 664530  |
| 2972 | F | 813355 | 4692 | B | 440583 | 6412 | B | 707138  |
| 2973 | F | 811466 | 4693 | B | 442491 | 6413 | B | 709063  |
| 2974 | F | 815198 | 4694 | B | 440583 | 6414 | B | 803951  |
| 2975 | F | 813243 | 4695 | B | 442441 | 6415 | B | 805790  |
| 2976 | F | 815798 | 4696 | B | 441274 | 6416 | B | 849771  |
| 2977 | F | 813917 | 4697 | B | 443135 | 6417 | B | 851730  |
| 2978 | F | 816879 | 4698 | B | 441459 | 6418 | B | 913917  |
| 2979 | F | 814940 | 4699 | B | 443353 | 6419 | B | 915796  |
| 2980 | F | 817571 | 4700 | B | 442412 | 6420 | B | 927331  |
| 2981 | F | 815676 | 4701 | B | 444339 | 6421 | B | 929238  |
| 2982 | F | 818388 | 4702 | B | 443184 | 6422 | B | 930857  |
| 2983 | F | 816489 | 4703 | B | 445100 | 6423 | B | 932735  |
| 2984 | F | 818884 | 4704 | B | 443131 | 6424 | B | 986987  |
| 2985 | F | 816921 | 4705 | B | 445100 | 6425 | B | 988912  |
| 2986 | F | 819597 | 4706 | B | 443800 | 6426 | B | 996771  |
| 2987 | F | 817680 | 4707 | B | 445789 | 6427 | B | 998623  |
| 2988 | F | 820485 | 4708 | B | 444771 | 6428 | B | 1000593 |
| 2989 | F | 818555 | 4709 | B | 446620 | 6429 | B | 1002496 |
| 2990 | F | 820764 | 4710 | B | 445100 | 6430 | B | 1010541 |
| 2991 | F | 818878 | 4711 | B | 446962 | 6431 | B | 1012452 |
| 2992 | F | 821982 | 4712 | B | 445229 | 6432 | B | 1011365 |
| 2993 | F | 820080 | 4713 | B | 447187 | 6433 | B | 1013249 |
| 2994 | F | 823403 | 4714 | B | 445974 | 6434 | B | 1013146 |
| 2995 | F | 821559 | 4715 | B | 447872 | 6435 | B | 1015044 |
| 2996 | F | 825235 | 4716 | B | 448028 | 6436 | B | 1029168 |
| 2997 | F | 823320 | 4717 | B | 449927 | 6437 | B | 1031036 |
| 2998 | F | 826405 | 4718 | B | 448958 | 6438 | B | 1087041 |
| 2999 | F | 824501 | 4719 | B | 450858 | 6439 | B | 1088885 |
| 3000 | F | 826945 | 4720 | B | 449850 | 6440 | B | 1119102 |
| 3001 | F | 825046 | 4721 | B | 451753 | 6441 | B | 1121033 |
| 3002 | F | 828489 | 4722 | B | 451103 | 6442 | B | 1170355 |
| 3003 | F | 826588 | 4723 | B | 453045 | 6443 | B | 1172218 |
| 3004 | F | 829813 | 4724 | B | 451482 | 6444 | B | 1181427 |

|      |   |        |      |   |        |      |   |         |
|------|---|--------|------|---|--------|------|---|---------|
| 3005 | F | 827917 | 4725 | B | 453330 | 6445 | B | 1183338 |
| 3006 | F | 830824 | 4726 | B | 452676 | 6446 | B | 1183263 |
| 3007 | F | 828906 | 4727 | B | 454575 | 6447 | B | 1185158 |
| 3008 | F | 831936 | 4728 | B | 453884 | 6448 | B | 1195296 |
| 3009 | F | 830099 | 4729 | B | 455783 | 6449 | B | 1197175 |
| 3010 | F | 833126 | 4730 | B | 455068 | 6450 | B | 1196406 |
| 3011 | F | 831274 | 4731 | B | 456963 | 6451 | B | 1198306 |

**TABLE 6**

| <i>clone Name</i> | <i>SEQ ID NO (B)</i> | <i>SEQ ID NO (F)</i> | <i>Chromosomal region</i> |
|-------------------|----------------------|----------------------|---------------------------|
| 790313H3#         | 6452                 | 6648                 | A                         |
| 790331B1#         | 6453                 | 6649                 | A                         |
| 790233A9#         | 6454                 | 6650                 | A                         |
| 790031G7#         | 6455                 | 6651                 | A                         |
| 890021E4#         | 6456                 | 6652                 | A                         |
| 790021E11#        | 6457                 | 6653                 | A                         |
| 790332G10#        | 6458                 | 6654                 | A                         |
| 790271B6#         | 6459                 | 6655                 | A                         |
| 790253H6#         | 6460                 | 6656                 | A                         |
| 790214E8#         | 6461                 | 6657                 | A                         |
| 790352D2#         | 6462                 | 6658                 | A                         |
| 790373F2#         | 6463                 | 6659                 | A                         |
| 790424A7#         | 6464                 | 6660                 | A                         |
| 790282F3#         | 6465                 | 6661                 | A                         |
| 790272F5#         | 6466                 | 6662                 | A                         |
| 790424F6#         | 6467                 | 6663                 | A                         |
| 890033H11#        | 6468                 | 6664                 | A                         |
| 790264H10#        | 6469                 | 6665                 | A                         |
| 790293A5#         | 6470                 | 6666                 | A                         |
| 790391E8#         | 6471                 | 6667                 | A                         |
| 890022B8#         | 6472                 | 6668                 | A                         |
| 790332B9#         | 6473                 | 6669                 | A                         |
| 790251B9#         | 6474                 | 6670                 | A                         |
| 790344E8#         | 6475                 | 6671                 | B                         |
| 790323F3#         | 6476                 | 6672                 | B                         |
| 790231G2#         | 6477                 | 6673                 | B                         |
| 790341C5#         | 6478                 | 6674                 | B                         |
| 790332H9#         | 6479                 | 6675                 | B                         |
| 890013A8#         | 6480                 | 6676                 | B                         |
| 790394F2#         | 6481                 | 6677                 | B                         |
| 790222G5#         | 6482                 | 6678                 | B                         |
| 790402A10#        | 6483                 | 6679                 | B                         |
| 790283F6#         | 6484                 | 6680                 | B                         |



|            |      |      |   |
|------------|------|------|---|
| 790041H11# | 6485 | 6681 | B |
| 790381C7#  | 6486 | 6682 | B |
| 790213E1#  | 6487 | 6683 | B |
| 790211C4#  | 6488 | 6684 | B |
| 790251B5#  | 6489 | 6685 | B |
| 790043H9#  | 6490 | 6686 | B |
| 790303F7#  | 6491 | 6687 | B |
| 790251G5#  | 6492 | 6688 | B |
| 790044H7#  | 6493 | 6689 | B |
| 790022E4#  | 6494 | 6690 | B |
| 790252A8#  | 6495 | 6691 | B |
| 790313E9#  | 6496 | 6692 | B |
| 790264G2#  | 6497 | 6693 | B |
| 790372A4#  | 6498 | 6694 | B |
| 790411C2#  | 6499 | 6695 | B |
| 790322B7#  | 6500 | 6696 | B |
| 790254F7#  | 6501 | 6697 | B |
| 790323B12# | 6502 | 6698 | B |
| 790263E5#  | 6503 | 6699 | B |
| 790223C8#  | 6504 | 6700 | B |
| 790231H2#  | 6505 | 6701 | B |
| 790324E12# | 6506 | 6702 | B |
| 790271D7#  | 6507 | 6703 | B |
| 790222E8#  | 6508 | 6704 | B |
| 790083G7#  | 6509 | 6705 | B |
| 790241D3#  | 6510 | 6706 | B |
| 790303C8#  | 6511 | 6707 | B |
| 790283F10# | 6512 | 6708 | B |
| 790241B7#  | 6513 | 6709 | B |
| 790373F10# | 6514 | 6710 | B |
| 790362F9#  | 6515 | 6711 | B |
| 790263H8#  | 6516 | 6712 | B |
| 790393D10# | 6517 | 6713 | B |
| 790313D12# | 6518 | 6714 | B |
| 890024C6#  | 6519 | 6715 | B |

|            |      |      |   |
|------------|------|------|---|
| 890024B10# | 6520 | 6716 | B |
| 790212E2#  | 6521 | 6717 | B |
| 790362E10# | 6522 | 6718 | B |
| 790344G11# | 6523 | 6719 | B |
| 890011D2#  | 6524 | 6720 | B |
| 790341B11# | 6525 | 6721 | B |
| 790064E10# | 6526 | 6722 | B |
| 790212E1#  | 6527 | 6723 | B |
| 790213G5#  | 6528 | 6724 | B |
| 790331F2#  | 6529 | 6725 | B |
| 890024B9#  | 6530 | 6726 | B |
| 790421F5#  | 6531 | 6727 | B |
| 890014D11# | 6532 | 6728 | B |
| 790373F3#  | 6533 | 6729 | B |
| 790293D4#  | 6534 | 6730 | B |
| 790211A3#  | 6535 | 6731 | B |
| 790211H8#  | 6536 | 6732 | B |
| 790264E7#  | 6537 | 6733 | B |
| 790292B11# | 6538 | 6734 | B |
| 790312A2#  | 6539 | 6735 | B |
| 890012D5#  | 6540 | 6736 | B |
| 790012D12# | 6541 | 6737 | B |
| 790291E10# | 6542 | 6738 | B |
| 790241C9#  | 6543 | 6739 | B |
| 790343F1#  | 6544 | 6740 | B |
| 790241D7#  | 6545 | 6741 | B |
| 790031H7#  | 6546 | 6742 | B |
| 790081C4#  | 6547 | 6743 | B |
| 790013B7#  | 6548 | 6744 | B |
| 790213F3#  | 6549 | 6745 | B |
| 790292F9#  | 6550 | 6746 | B |
| 790423F4#  | 6551 | 6747 | B |
| 790331F3#  | 6552 | 6748 | B |
| 790222B10# | 6553 | 6749 | B |
| 790261G12# | 6554 | 6750 | B |

|            |      |      |   |
|------------|------|------|---|
| 790423G10# | 6555 | 6751 | B |
| 790392A9#  | 6556 | 6752 | B |
| 790331B5#  | 6557 | 6753 | B |
| 790323H3#  | 6558 | 6754 | B |
| 890014H8#  | 6559 | 6755 | B |
| 790231B6#  | 6560 | 6756 | B |
| 790252F7#  | 6561 | 6757 | B |
| 790392C10# | 6562 | 6758 | B |
| 790021D4#  | 6563 | 6759 | B |
| 790052D10# | 6564 | 6760 | B |
| 790261E3#  | 6565 | 6761 | B |
| 890023E10# | 6566 | 6762 | B |
| 790244B7#  | 6567 | 6763 | B |
| 790383E1#  | 6568 | 6764 | B |
| 790401B11# | 6569 | 6765 | B |
| 790411B5#  | 6570 | 6766 | B |
| 790423A11# | 6571 | 6767 | B |
| 790031A4#  | 6572 | 6768 | B |
| 790241G3#  | 6573 | 6769 | B |
| 790044F7#  | 6574 | 6770 | B |
| 790252B10# | 6575 | 6771 | B |
| 790293F9#  | 6576 | 6772 | B |
| 790282H3#  | 6577 | 6773 | B |
| 790381C10# | 6578 | 6774 | B |
| 790024H5#  | 6579 | 6775 | B |
| 790354H7#  | 6580 | 6776 | B |
| 790411F9#  | 6581 | 6777 | B |
| 790324G10# | 6582 | 6778 | B |
| 790014A5#  | 6583 | 6779 | B |
| 790381F3#  | 6584 | 6780 | B |
| 790424D3#  | 6585 | 6781 | B |
| 790394A10# | 6586 | 6782 | B |
| 790423C10# | 6587 | 6783 | B |
| 790214D6#  | 6588 | 6784 | B |
| 790214C4#  | 6589 | 6785 | B |

|            |      |      |   |
|------------|------|------|---|
| 790014F11# | 6590 | 6786 | B |
| 790352F10# | 6591 | 6787 | B |
| 790381H6#  | 6592 | 6788 | B |
| 790282G5#  | 6593 | 6789 | B |
| 790263C8#  | 6594 | 6790 | B |
| 890022B4#  | 6595 | 6791 | B |
| 790283C6#  | 6596 | 6792 | B |
| 790293B2#  | 6597 | 6793 | B |
| 790073A3#  | 6598 | 6794 | B |
| 790313E10# | 6599 | 6795 | B |
| 790361D3#  | 6600 | 6796 | B |
| 790014A11# | 6601 | 6797 | B |
| 790254G2#  | 6602 | 6798 | B |
| 790381C6#  | 6603 | 6799 | B |
| 790424E3#  | 6604 | 6800 | B |
| 790421G8#  | 6605 | 6801 | B |
| 790013C3#  | 6606 | 6802 | B |
| 790263E8#  | 6607 | 6803 | B |
| 790373C1#  | 6608 | 6804 | B |
| 790041C1#  | 6609 | 6805 | B |
| 790344A7#  | 6610 | 6806 | B |
| 790271D6#  | 6611 | 6807 | B |
| 790342H2#  | 6612 | 6808 | B |
| 890021A6#  | 6613 | 6809 | B |
| 790381E7#  | 6614 | 6810 | C |
| 790013G10# | 6615 | 6811 | C |
| 790254A4#  | 6616 | 6812 | C |
| 790213D8#  | 6617 | 6813 | C |
| 790052A4#  | 6618 | 6814 | C |
| 790213D3#  | 6619 | 6815 | C |
| 790394D2#  | 6620 | 6816 | C |
| 790214D2#  | 6621 | 6817 | C |
| 790014A4#  | 6622 | 6818 | C |
| 790324H4#  | 6623 | 6819 | C |
| 790082B4#  | 6624 | 6820 | C |

|            |      |      |   |
|------------|------|------|---|
| 790324A6#  | 6625 | 6821 | C |
| 790424A12# | 6626 | 6822 | C |
| 790044G8#  | 6627 | 6823 | C |
| 790323C6#  | 6628 | 6824 | C |
| 790312G4#  | 6629 | 6825 | C |
| 790053C11# | 6630 | 6826 | C |
| 890022B7#  | 6631 | 6827 | C |
| 790392A2#  | 6632 | 6828 | C |
| 890023D8#  | 6633 | 6829 | C |
| 790301F1#  | 6634 | 6830 | C |
| 790343A11# | 6635 | 6831 | C |
| 790421A2#  | 6636 | 6832 | C |
| 790271G2#  | 6637 | 6833 | C |
| 790302G12# | 6638 | 6834 | C |
| 790341E5#  | 6639 | 6835 | C |
| 790283B6#  | 6640 | 6836 | C |
| 790222A4#  | 6641 | 6837 | C |
| 790241B8#  | 6642 | 6838 | C |
| 790014C2#  | 6643 | 6839 | C |
| 790402C1#  | 6644 | 6840 | C |
| 790264E9#  | 6645 | 6841 | C |
| 790242G4#  | 6646 | 6842 | C |
| 790422F3#  | 6647 | 6843 | C |

TABLE 7

| <i>SEQ ID</i> | <i>or.</i> | <i>5'position</i> | <i>SEQ ID</i> | <i>or.</i> | <i>5'position</i> | <i>SEQ ID</i> | <i>or.</i> | <i>5'position</i> |
|---------------|------------|-------------------|---------------|------------|-------------------|---------------|------------|-------------------|
| 6452          | B          | 29372             | 6583          | B          | 547718            | 6714          | F          | 519646            |
| 6453          | B          | 30198             | 6584          | B          | 547184            | 6715          | F          | 520201            |
| 6454          | B          | 31007             | 6585          | B          | 547684            | 6716          | F          | 520563            |
| 6455          | B          | 31126             | 6586          | B          | 547342            | 6717          | F          | 521015            |
| 6456          | B          | 32735             | 6587          | B          | 548946            | 6718          | F          | 521162            |
| 6457          | B          | 32264             | 6588          | B          | 549071            | 6719          | F          | 521543            |
| 6458          | B          | 32898             | 6589          | B          | 550054            | 6720          | F          | 521739            |
| 6459          | B          | 33582             | 6590          | B          | 549989            | 6721          | F          | 522328            |
| 6460          | B          | 33519             | 6591          | B          | 550426            | 6722          | F          | 522567            |
| 6461          | B          | 34836             | 6592          | B          | 550055            | 6723          | F          | 522915            |
| 6462          | B          | 35795             | 6593          | B          | 550132            | 6724          | F          | 523300            |
| 6463          | B          | 35548             | 6594          | B          | 550132            | 6725          | F          | 523791            |
| 6464          | B          | 35825             | 6595          | B          | 551400            | 6726          | F          | 523959            |
| 6465          | B          | 37239             | 6596          | B          | 551572            | 6727          | F          | 524369            |
| 6466          | B          | 36761             | 6597          | B          | 551468            | 6728          | F          | 524801            |
| 6467          | B          | 37045             | 6598          | B          | 550849            | 6729          | F          | 525085            |
| 6468          | B          | 36761             | 6599          | B          | 552137            | 6730          | F          | 525241            |
| 6469          | B          | 37958             | 6600          | B          | 552325            | 6731          | F          | 525738            |
| 6470          | B          | 38636             | 6601          | B          | 552583            | 6732          | F          | 526263            |
| 6471          | B          | 39813             | 6602          | B          | 553033            | 6733          | F          | 526628            |
| 6472          | B          | 41140             | 6603          | B          | 553629            | 6734          | F          | 526779            |
| 6473          | B          | 40575             | 6604          | B          | 553960            | 6735          | F          | 527004            |
| 6474          | B          | 40526             | 6605          | B          | 553914            | 6736          | F          | 527230            |
| 6475          | B          | 501495            | 6606          | B          | 554354            | 6737          | F          | 527381            |
| 6476          | B          | 502410            | 6607          | B          | 555783            | 6738          | F          | 527545            |
| 6477          | B          | 502586            | 6608          | B          | 555687            | 6739          | F          | 527691            |
| 6478          | B          | 503233            | 6609          | B          | 556441            | 6740          | F          | 527932            |
| 6479          | B          | 503749            | 6610          | B          | 557054            | 6741          | F          | 527995            |
| 6480          | B          | 504488            | 6611          | B          | 556627            | 6742          | F          | 528167            |
| 6481          | B          | 504206            | 6612          | B          | 557292            | 6743          | F          | 528610            |
| 6482          | B          | 504310            | 6613          | B          | 557050            | 6744          | F          | 529063            |
| 6483          | B          | 505455            | 6614          | B          | 815995            | 6745          | F          | 529710            |
| 6484          | B          | 505877            | 6615          | B          | 817104            | 6746          | F          | 531140            |

|      |   |        |
|------|---|--------|
| 6485 | B | 506655 |
| 6486 | B | 506513 |
| 6487 | B | 507532 |
| 6488 | B | 507742 |
| 6489 | B | 508050 |
| 6490 | B | 507771 |
| 6491 | B | 509120 |
| 6492 | B | 509646 |
| 6493 | B | 510137 |
| 6494 | B | 510953 |
| 6495 | B | 511165 |
| 6496 | B | 511526 |
| 6497 | B | 511993 |
| 6498 | B | 513012 |
| 6499 | B | 512983 |
| 6500 | B | 512781 |
| 6501 | B | 514155 |
| 6502 | B | 515036 |
| 6503 | B | 515287 |
| 6504 | B | 516292 |
| 6505 | B | 516234 |
| 6506 | B | 516337 |
| 6507 | B | 517347 |
| 6508 | B | 517005 |
| 6509 | B | 516888 |
| 6510 | B | 516234 |
| 6511 | B | 517560 |
| 6512 | B | 517337 |
| 6513 | B | 518756 |
| 6514 | B | 518943 |
| 6515 | B | 519833 |
| 6516 | B | 520123 |
| 6517 | B | 520574 |
| 6518 | B | 520888 |
| 6519 | B | 522154 |

|      |   |        |
|------|---|--------|
| 6616 | B | 817104 |
| 6617 | B | 816920 |
| 6618 | B | 820464 |
| 6619 | B | 821017 |
| 6620 | B | 821379 |
| 6621 | B | 821504 |
| 6622 | B | 822723 |
| 6623 | B | 823298 |
| 6624 | B | 823380 |
| 6625 | B | 824414 |
| 6626 | B | 824204 |
| 6627 | B | 825288 |
| 6628 | B | 825346 |
| 6629 | B | 825403 |
| 6630 | B | 826237 |
| 6631 | B | 824995 |
| 6632 | B | 826838 |
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| 6811 | F | 815376 |
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WHAT IS CLAIMED IS:

- 1- An isolated polynucleotide having a nucleotide sequence of a *Chlamydia pneumoniae* genome, comprising
- 5 (a) the a nucleotide sequence of SEQ ID No. 1;
- (b) the nucleotide sequence contained within the *Chlamydia pneumoniae* genomic DNA in ATCC Deposit No. \_\_\_\_\_;
- (c) the nucleotide sequence contained in a clone insert in ATCC Deposit No. \_\_\_\_\_;
- 10 (d) a nucleotide sequence exhibiting at least 99.9% identity with the sequence of SEQ ID No. 1; or
- (e) a nucleotide sequence exhibiting at least 80% homology to SEQ ID No. 1.
- 15 2- An isolated polynucleotide which hybridizes to SEQ ID No. 1 or to the *Chlamydia pneumoniae* genomic DNA contained in ATCC deposit No. \_\_\_\_\_ or to a clone insert in ATCC Deposit No. \_\_\_\_\_ under conditions of high stringency:
- 3- An isolated polynucleotide which hybridizes to SEQ ID No. 1 or to the *Chlamydia pneumoniae* genomic DNA contained in ATCC deposit No. \_\_\_\_\_ under conditions of intermediate stringency.
- 20 4- An isolated polynucleotide having a nucleotide sequence of an open reading frame (ORF) of a *Chlamydia pneumoniae* genome, comprising:
- 25 (a) a nucleotide sequence chosen from one of ORF2 to ORF 1297;
- (b) a nucleotide sequence exhibiting at least 99.9% identity with one of ORF2 to ORF 1297; or
- (c) a nucleotide sequence exhibiting at least 80% homology to one of ORF2 to ORF 1297.
- 30 5- An isolated polynucleotide which hybridizes to one of ORF2 to ORF 1297 under conditions of high stringency.
- 6- An isolated polynucleotide which hybridizes to one of ORF2 to ORF 1297 under conditions of intermediate stringency.
- 35 7- The polynucleotide of Claims 2, 3, 4, 5, or 6 which encodes the following polypeptides or fragments thereof:
- (a) a *Chlamydia pneumoniae* transmembrane polypeptide having
- 40 between 1 and 3 transmembrane domains;



- (b) a *Chlamydia pneumoniae* transmembrane polypeptide having between 4 and 6 transmembrane domains;
- (c) a *Chlamydia pneumoniae* transmembrane polypeptide having at least 7 transmembrane domains;
- 5 (d) a *Chlamydia pneumoniae* polypeptide involved in intermediate metabolism of sugars and/or cofactors;
- (e) a *Chlamydia pneumoniae* polypeptide involved in intermediate metabolism of nucleotides or nucleic acids;
- 10 (f) a *Chlamydia pneumoniae* polypeptide involved in metabolism of amino acids or polypeptides;
- (g) a *Chlamydia pneumoniae* polypeptide having involved in metabolism of fatty acids;
- (h) a *Chlamydia pneumoniae* polypeptide involved in the synthesis of the cell wall;
- 15 (i) a *Chlamydia pneumoniae* polypeptide involved in transcription, translation, and/or maturation process;
- (j) a *Chlamydia pneumoniae* transport polypeptide;
- (k) a *Chlamydia pneumoniae* polypeptide involved in the virulence process;
- 20 (l) a *Chlamydia pneumoniae* polypeptide involved in the secretory system and/or which is secreted;
- (m) a *Chlamydia pneumoniae* polypeptide of the cellular envelope or outer cellular envelope of *Chlamydia pneumoniae*.
- (n) a *Chlamydia pneumoniae* surface exposed polypeptide;
- 25 (o) a *Chlamydia pneumoniae* lipoprotein;
- (p) a *Chlamydia pneumoniae* polypeptide involved in lipopolysaccharide biosynthesis;
- (q) a *Chlamydia pneumoniae* KDO-related polypeptide;
- (r) a *Chlamydia pneumoniae* phosphomannomutase-related polypeptide;
- 30 (s) a *Chlamydia pneumoniae* lipid A component-related polypeptide;
- (t) a *Chlamydia pneumoniae* phosphoglucomutase-related polypeptide;
- 35 (u) a *Chlamydia pneumoniae* polypeptide that contains an RGD sequence;
- (v) a *Chlamydia pneumoniae* Type III secreted polypeptide;
- (w) a *Chlamydia pneumoniae* cell wall anchored surface polypeptide; or

- (x) a *Chlamydia pneumoniae* polypeptide that is not found in *Chlamydia trachomatis*.

- 8- A polynucleotide encoding a fusion protein, comprising one of ORF2 to ORF1297 of  
5 Claim 4, 5, or 6 ligated in frame to a polynucleotide encoding a heterologous polypeptide.
- 9- A recombinant vector that contains the polynucleotide of Claim 1, 2, 3, 4, 5 or 6.
- 10- A recombinant vector that contains the polynucleotide of Claim 8.  
10
- 11- A recombinant vector that contains the polynucleotide of Claim 4, 5 or 6, operatively  
associated with a regulatory sequence that controls gene expression.
- 12- A recombinant vector that contains the polynucleotide of Claim 8 operatively associated  
15 with a regulatory sequence that controls gene expression.
- 13- A genetically engineered host cell that contains the polynucleotide of Claim 1, 2, 3, 4, 5 or  
6.
- 20 14- A genetically engineered host cell that contains the polynucleotide of Claim 8.
- 15- A genetically engineered host cell that contains the polynucleotide of Claim 4, 5 or 6  
operatively associated with a regulatory sequence that controls gene expression in the host  
cell.  
25
- 16- A genetically engineered host cell that contains the polynucleotide of Claim 8 operatively  
associated with a regulatory sequence that controls gene expression in the host cell.
- 17- A method for producing a polypeptide, comprising:  
30 (a) culturing the genetically engineered host cell of Claim 15 under  
conditions suitable to produce the polypeptide encoded by the  
polynucleotide; and  
(b) recovering the polypeptide from the culture.
- 35 18- A method for producing a fusion protein, comprising:  
(a) culturing the genetically engineered host cell of Claim 16 under  
conditions suitable to produce the fusion protein encoded by the  
polynucleotide; and  
(b) recovering the fusion protein from the culture.

19- A polypeptide encoded by the polynucleotide of Claim 4, 5 or 6.

20- The polypeptide of Claim 19 which immunoreacts with seropositive serum of an individual infected with *Chlamydia pneumoniae*.

21- The polypeptide of Claim 19 which comprises the following polypeptides or fragments thereof:

- 10 (a) a *Chlamydia pneumoniae* transmembrane polypeptide having between 1 and 3 transmembrane domains;
- (b) a *Chlamydia pneumoniae* transmembrane polypeptide having between 4 and 6 transmembrane domains;
- (c) a *Chlamydia pneumoniae* transmembrane polypeptide having at least 7 transmembrane domains;
- 15 (d) a *Chlamydia pneumoniae* polypeptide involved in intermediate metabolism of sugars and/or cofactors;
- (e) a *Chlamydia pneumoniae* polypeptide involved in intermediate metabolism of nucleotides or nucleic acids;
- (f) a *Chlamydia pneumoniae* polypeptide involved in metabolism of amino acids or polypeptides;
- 20 (g) a *Chlamydia pneumoniae* polypeptide involved in metabolism of fatty acids;
- (h) a *Chlamydia pneumoniae* polypeptide involved in the synthesis of the cell wall;
- 25 (i) a *Chlamydia pneumoniae* polypeptide involved in transcription, translation, and/or maturation process;
- (j) a *Chlamydia pneumoniae* transport polypeptide;
- (k) a *Chlamydia pneumoniae* polypeptide involved in the virulence process;
- 30 (l) a *Chlamydia pneumoniae* polypeptide involved in the secretory system and/or which is secreted;
- (m) a *Chlamydia pneumoniae* polypeptide of the cellular envelope or outer cellular envelope of *Chlamydia pneumoniae*.
- (n) a *Chlamydia pneumoniae* surface exposed polypeptide;
- 35 (o) a *Chlamydia pneumoniae* lipoprotein;
- (p) a *Chlamydia pneumoniae* polypeptide involved in lipopolysaccharide biosynthesis;
- (q) a *Chlamydia pneumoniae* KDO-related polypeptide;

- (r) a *Chlamydia pneumoniae* phosphomannomutase-related polypeptide;
- (s) a *Chlamydia pneumoniae* phosphoglucosyltransferase-related polypeptide;
- 5 (t) a *Chlamydia pneumoniae* lipid A component-related polypeptide;
- (u) a *Chlamydia pneumoniae* polypeptide that contains an RGD sequence;
- (v) a *Chlamydia pneumoniae* Type III secreted polypeptide;
- 10 (w) a *Chlamydia pneumoniae* cell wall anchored surface polypeptide; or
- (x) a *Chlamydia pneumoniae* polypeptide that is not found in *Chlamydia trachomatis*.
- 15 22- A fusion protein encoded by the polynucleotide of Claim 8.
- 23- The fusion protein of Claim 22 which immunoreacts with seropositive serum of an individual infected with *Chlamydia pneumoniae*.
- 20 24- An antibody that immunospecifically binds to the polypeptide of Claim 19.
- 25- An antibody that immunospecifically binds to the fusion protein of Claim 22.
- 26- A method for the detection and/or identification of *Chlamydia pneumoniae* in a biological sample, comprising:
- 25 (a) contacting the sample with a polynucleotide primer of Claim 1, 2, 3, 4, 5, or 6 in the presence of a polymerase enzyme and nucleotides under conditions which permit primer extension; and
- 30 (b) detecting the presence of primer extension products in the sample in which the detection of primer extension products indicates the presence of *Chlamydia pneumoniae* in the sample.
- 27- A method for the detection and/or identification of *Chlamydia pneumoniae* in a biological sample, comprising:
- 35 (a) contacting the sample with a polynucleotide probe of Claim 1, 2, 3, 4, 5, or 6 under conditions which permit hybridization of complementary base pairs; and

- (b) detecting the presence of hybridization complexes in the sample in which the detection of hybridization complexes indicates the presence of *Chlamydia pneumoniae* in the sample.

5 28- A method for the detection and/or identification of *Chlamydia pneumoniae* in a biological sample, comprising:

- 10 (a) contacting the sample with the antibody of Claim 24 under conditions suitable for the formation of immune complexes; and  
(b) detecting the presence of immune complexes in the sample, in which the detection of immune complexes indicates the presence of *Chlamydia pneumoniae* in the sample.

29- A method for the detection and/or identification of antibodies to *Chlamydia pneumoniae* in a biological sample, comprising:

- 15 (a) contacting the sample with a polypeptide of Claim 19 under conditions suitable for the formation of immune complexes; and  
(b) detecting the presence of immune complexes in the sample, in which the detection of immune complexes indicates the presence of *Chlamydia pneumoniae* in the sample.

20

30- A DNA chip containing an array of polynucleotides comprising at least one of the polynucleotides of Claim 1, 2, 3, 4, 5, or 6.

31- A protein chip containing an array of polypeptides comprising at least one of the polypeptides of Claim 19.

25

32- An immunogenic composition comprising the polypeptide of Claim 19 and a pharmaceutically acceptable carrier.

30 33- An immunogenic composition comprising the polypeptide of Claim 20 and a pharmaceutically acceptable carrier.

34- An immunogenic composition comprising the fusion protein of Claim 22 and a pharmaceutically acceptable carrier.

35

35- An immunogenic composition comprising the fusion protein of Claim 23 and a pharmaceutically acceptable carrier.

- 36- A pharmaceutical composition comprising the polypeptide of Claim 19 and a pharmaceutically acceptable carrier.
- 37- A pharmaceutical composition comprising the polypeptide of Claim 20 and a pharmaceutically acceptable carrier.
- 38- A pharmaceutical composition comprising the polypeptide of Claim 22 and a pharmaceutically acceptable carrier.
- 39- A pharmaceutical composition comprising the polypeptide of Claim 23 and a pharmaceutically acceptable carrier.
- 40- A method of immunizing against *Chlamydia pneumoniae*, comprising: administering to a host an immunizing amount of the immunogenic composition of Claim 32.
- 41- A method of immunizing against *Chlamydia pneumoniae*, comprising: administering to a host an immunizing amount of the immunogenic composition of Claim 33.
- 42- A method of immunizing against *Chlamydia pneumoniae*, comprising administering to a host an immunizing amount of the immunogenic composition of Claim 34.
- 43- A method of immunizing against *Chlamydia pneumoniae*, comprising: administering to a host an immunizing amount of the immunogenic composition of Claim 35.
- 44- A DNA immunogenic composition comprising the expression vector of Claim 11.
- 45- The DNA composition of Claim 44, wherein the DNA composition directs the expression of a neutralizing epitope of *Chlamydia pneumoniae*.
- 46- A DNA immunogenic composition comprising the expression vector of Claim 12.
- 47- The DNA composition of Claim 46, wherein the DNA composition directs the expression of a neutralizing epitope of *Chlamydia pneumoniae*.
- 48- A screening assay, comprising:
- (a) contacting a test compound with an isolated polynucleotide of Claim 1, 2, 3, 4, 5 or 6; and
  - (b) detecting whether binding occurs.

49- A screening assay, comprising:

- (a) contacting a test compound with the polypeptide of Claim 19;  
and
- (b) detecting whether binding occurs.

5

50- A screening assay, comprising:

- (a) contacting a test compound with the polypeptide of Claim 22;  
and
- (b) detecting whether binding occurs.

10 51- A kit comprising a container containing an isolated polynucleotide of Claim 1, 2, 3, 4, 5 or 6.

52- The kit of Claim 51 wherein the polynucleotide is a primer or a probe.

15 53- The kit of Claim 51 wherein the polynucleotide is a primer and the kit further comprises a container containing a polymerase.

54- The kit of Claim 51 which further comprises a container containing deoxynucleotide triphosphates.

20

55- A kit comprising a container containing an antibody that immunospecifically binds to the polypeptide of Claim 19.

25 56- A kit comprising a container containing an antibody that immunospecifically binds to the fusion protein of Claim 22.

Figure 1.

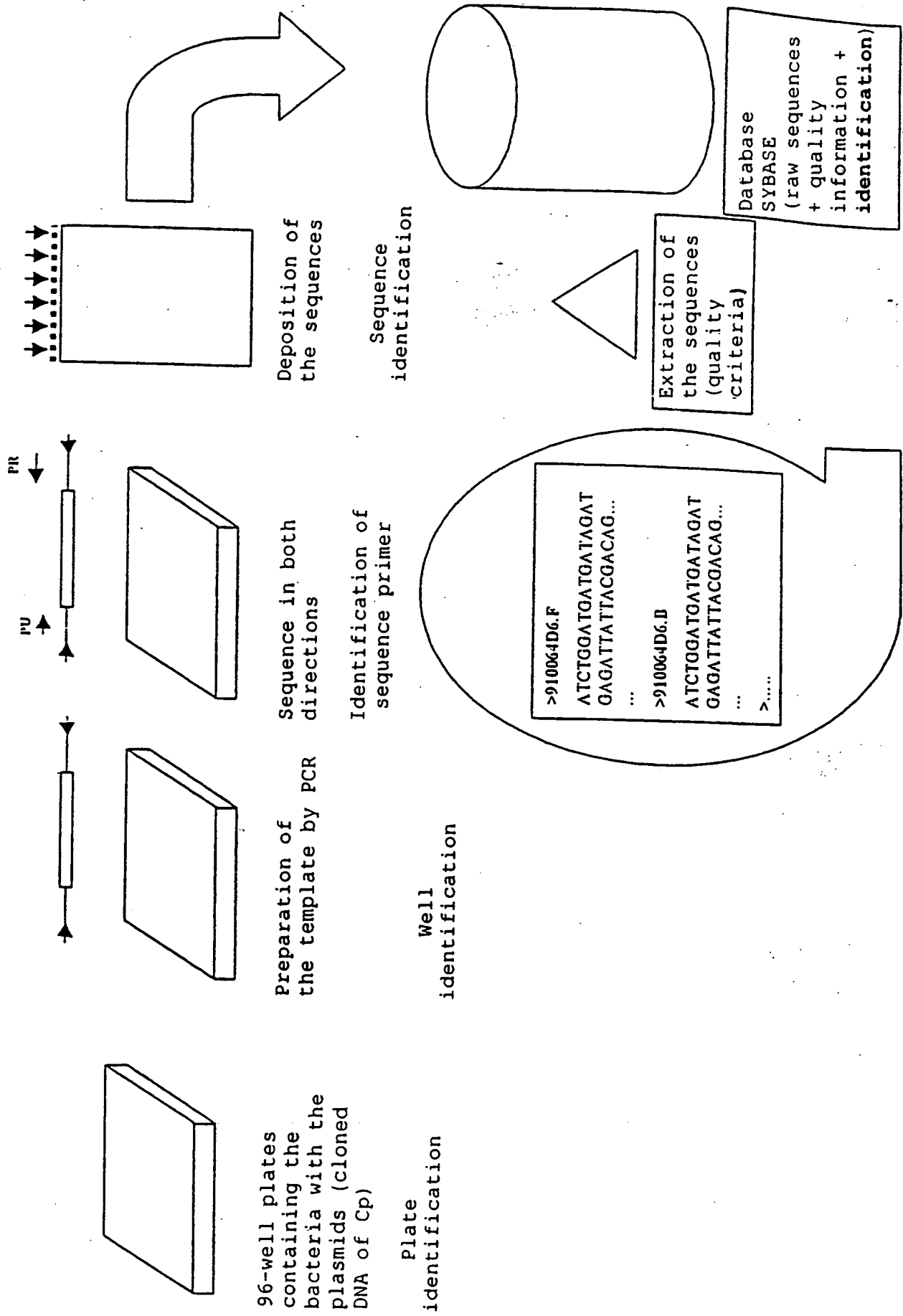




Figure 2.

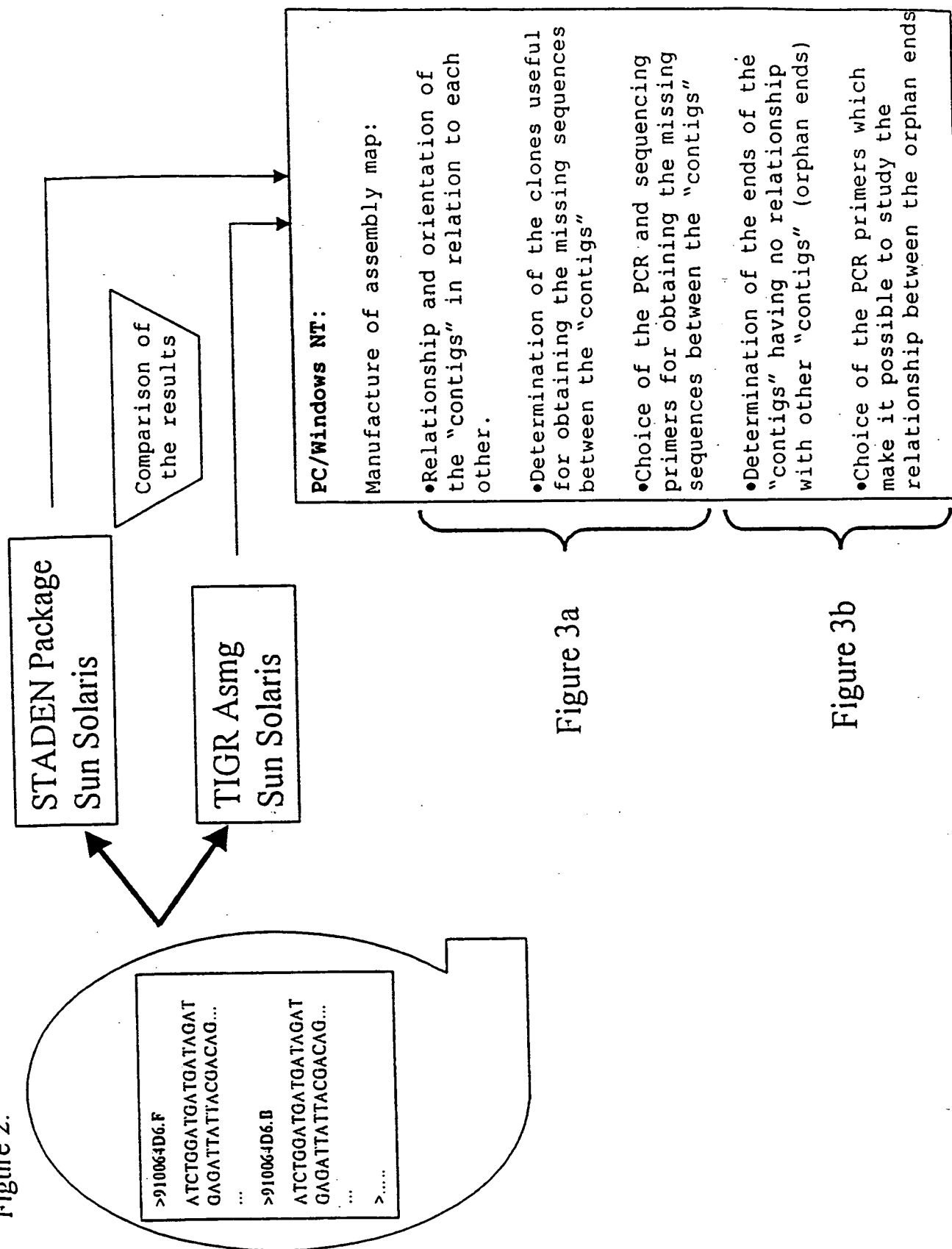
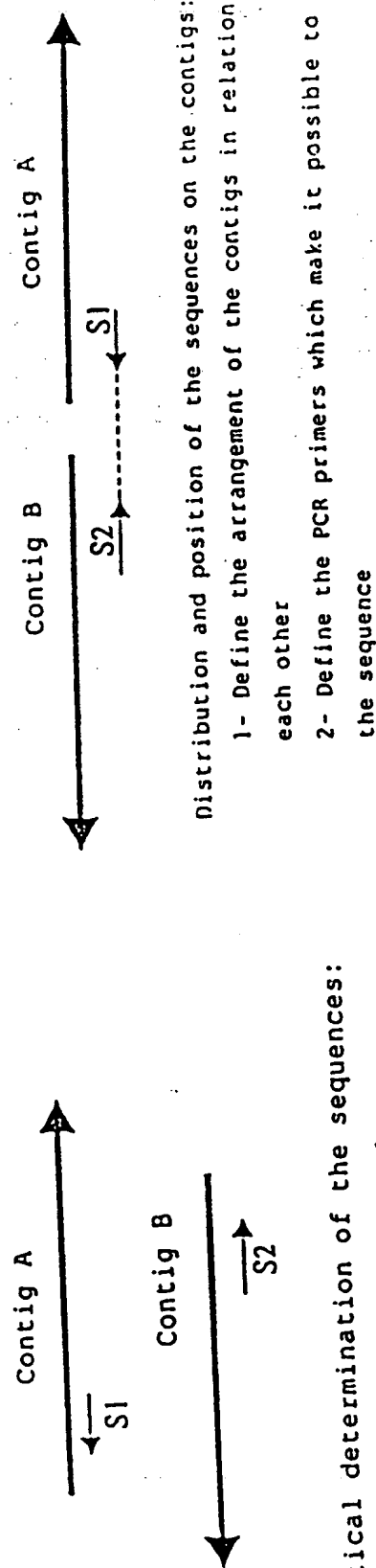


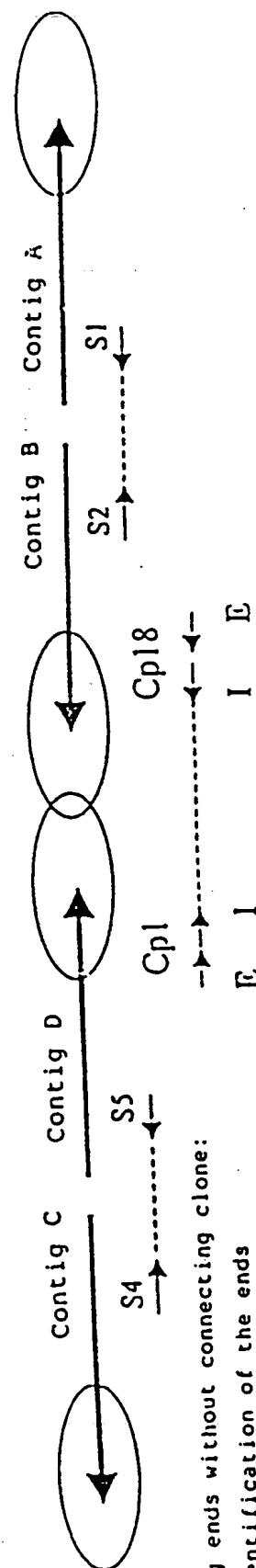
FIGURE 3A



Statistical determination of the sequences:

- 1- Belonging to the same clone
- 2- Situated on two different contigs

FIGURE 3B



## SEQUENCE LISTING

&lt;110&gt;Genset SA

&lt;120&gt;Chlamydia pneumoniae genomic sequence and polypeptides, fragments thereof and uses thereof, in particular for the diagnosis, prevention and treatment of infection

&lt;151&gt;1997-11-21

&lt;160&gt;6849

&lt;210&gt;1

&lt;211&gt;1230025

&lt;212&gt;DNA

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1

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| atcttctgaa  | gaggaggcgg  | agcgtgttgc  | agactataat | cgtgtagctg  | agcttcgggt  | 189840 |
| tagtttaatt  | ccccaaactg  | aagaagaaat  | caaacaggat | gaagcctctt  | taaatcaaa   | 189900 |
| agataaccgt  | ctccttcaag  | aagaagttga  | cgagcgattg | attgcaag    | tggttagctaa | 189960 |
| ttggacaggg  | attcctgtgc  | aaaaaatgct  | agaaggggaa | gctgagaaac  | tgtaatttct  | 190020 |
| tgaagaatcc  | ttagaagaac  | gtgtggtagg  | acagcctttt | gcagtctctg  | cggttagtga  | 190080 |
| ttctattcgt  | gctgcacgtg  | taggttttaa  | tgatcctcaa | cgctcccttag | gagtcttttt  | 190140 |
| atcttttaggg | ccaacagggg  | taggaaaaac  | cgagcttgca | aaagctcttg  | cagatcttct  | 190200 |
| tttcaataaaa | gaggaagcta  | tggtccgctt  | cgatatgtca | gagtatatgg  | aaaagcattc  | 190260 |
| catttccaag  | cttataggat  | cttctccagg  | gtatgtgggt | tatgaggaag  | gtgggagtct  | 190320 |
| ttctgaggct  | cttcgacgac  | gtccctattc  | agtagttctc | tttgatgaga  | tagagaaagc  | 190380 |
| agataaggaa  | gttctaaata  | tcctttttaca | ggtttttgat | gatgggattc  | ttacggatgg  | 190440 |
| gaaaaaacgc  | aaagtaaatt  | gtaaaaatgc  | cttgttttat | atgacatcaa  | atatagggtc  | 190500 |
| tccagaactt  | gcagattatt  | gttcaaaaaa  | aggaagttag | cttacgaaag  | aagcgattct  | 190560 |
| ttctgtagtc  | tctccagtat  | tgaaaaagata | cttgagccct | gaatttatga  | accgaattga  | 190620 |
| tgagataact  | ccttttggtc  | cattaacgaa  | agaagatata | gtgaaaatag  | ttggcattca  | 190680 |
| aatgcgaagg  | attgccagga  | gattaaaggc  | acggcggtat | aatttatctt  | gggatgatcc  | 190740 |
| tgtaatatata | tttcttagtg  | aacagggtta  | tgacagtgtc | ttcggagccc  | gccctttaaa  | 190800 |
| acgtttgatc  | caacaaaaag  | ttgtgatctt  | gctttctaag | gctttgctta  | aaggagatat  | 190860 |
| taaacctgat  | acatcgattg  | agttgacgat  | ggcaaaagag | gtgctcgtat  | ttaaaaaagt  | 190920 |
| ggaaactcct  | tcttagagag  | ttttctatgg  | gtgcggaatt | ttagatacta  | ggaaaaagccc | 190980 |
| tctttgttaa  | gagaatggat  | aggtttttag  | attctatgtc | ttcttgctac  | gctttcttgt  | 191040 |
| ttcccgggat  | cataaaaaaa  | ctaggacgat  | aaagtgtgtg | taggattaga  | attgtgcggc  | 191100 |
| aagcttcatt  | tggctaaaca  | agagcagtca  | cagaaattta | agaagtccta  | tgtttaagag  | 191160 |
| ctttatagta  | aggtatatgt  | ttgtagggtg  | ccttggttca | ttcttgcttc  | ctatccccga  | 191220 |
| cttggaatgt  | gcgaataatg  | taacaaaaac  | ttatgataag | aaagcttctg  | ttatatccag  | 191280 |

|             |             |             |             |             |             |        |
|-------------|-------------|-------------|-------------|-------------|-------------|--------|
| agatcttaag  | ctacaggaag  | actgccagaa  | gttttggaat  | cttgatccgt  | ataaactaga  | 191340 |
| aagtctttgt  | gcttatcaag  | tgctttacca  | tgatgactat  | agttccaaga  | gaatacgaga  | 191400 |
| gctttttcct  | caaataccaaa | aagacgaagt  | ccccatattt  | gcaacaatga  | ttcttacttt  | 191460 |
| agggaaagta  | gaccgtggct  | tttctcctga  | agaaatttca  | ttgatccaaa  | aactttctta  | 191520 |
| cccaggcctc  | tcattggctt  | ctttgagagg  | gtctacagaa  | attagaccgc  | aatacagatt  | 191580 |
| tggctcgtgc  | tttagtagtg  | tcggagtttt  | ctggagattt  | agggagaagac | cgagctgact  | 191640 |
| actatagcaa  | ttgccttgat  | attttggcgt  | tgcgatttca  | tgacagaacgt | caaagggtatt | 191700 |
| tagatcagtc  | tccttgtgtt  | cctggaacct  | ccgagtttca  | taaggcaact  | atagaagcta  | 191760 |
| ttaatacagat | actcttctat  | gaagaagcag  | ttcgttatcc  | ttcgaagaaa  | gaaatgtttt  | 191820 |
| ctgatgaatt  | ttcttttctt  | ttctcagtta  | cagatagaaa  | attcggcgta  | tgtttagggg  | 191880 |
| ttcttctctt  | ttatttctct  | ttgtcacagc  | gcttagattt  | accttttagag | gctgtgacgc  | 191940 |
| ctcctgggca  | tatctactta  | cgttatcagg  | gtggtgaggt  | gaacattgag  | actacagctg  | 192000 |
| gaggggcgcca | tcttcttaca  | gcaagttact  | gtgattgtct  | agatttagaa  | gaccttcagg  | 192060 |
| tgcgactacc  | tgaagaaatg  | atagggctta  | cttttatgaa  | ccagggctct  | tttgctctgc  | 192120 |
| agaagaaaaa  | gtataaggaa  | gcggaagagg  | cttataaaaa  | ggctcaagag  | tatttgggag  | 192180 |
| acgaggaact  | acaagagctt  | ttgggggtttg | ttcaaatcct  | aggaggaaaag | aaaaaagagg  | 192240 |
| ggaaatcttt  | gattggtaaa  | agtcctcgcg  | cttcccagaa  | aggatcggtg  | gcttatgact  | 192300 |
| accttaaagg  | tagaatcaac  | attccaacac  | tagctctttt  | attttcttat  | ccaggatcca  | 192360 |
| attatgaaga  | gatatcttct  | tatgaagaag  | aactcaaaaa  | ggctatgaaa  | agctcgatgc  | 192420 |
| catggttgga  | aggacagcgt  | cgtcttgctt  | cagtagcatt  | tcatttgggg  | aagacagcgg  | 192480 |
| aggcggttgc  | tcttttagaa  | aaatgcgttg  | aggatatccc  | taatgatctt  | tctcttcatt  | 192540 |
| taaggttatg  | taaaatccta  | tgtgatcgac  | atgagtatac  | aaaggctttg  | aaataactca  | 192600 |
| taattgcgga  | aagacttatg  | gaggatcagg  | gatttcttaa  | aaaagacaat  | cgttcggttcg | 192660 |
| ctttatttta  | tgagggtgaa  | aaaatcatat  | ccaaagtggc  | tcctcaaaaa  | gctaacacct  | 192720 |
| tgcttttaat  | ggagtctgaa  | agataaactg  | atcagttctt  | tctgtattgc  | tcttatttat  | 192780 |
| aacatgttat  | aacattgcaa  | gtgttaattt  | ttaacagatc  | tttatttgtt  | gcaatatttt  | 192840 |
| tttaaataag  | aattgagcta  | ttttttagcc  | tcattattga  | gatgtcatga  | aagatttgaa  | 192900 |
| tcaaagtaag  | tcttgctttc  | caagcttttg  | taggattaaa  | gtgtttgaga  | tgaattcgca  | 192960 |
| tttttctaat  | attagttgga  | attagttatg  | gcagttcgga  | agttgttttc  | cagacagttc  | 193020 |
| atggcttttg  | ctttggttga  | ttgtcttcaa  | aaagtgttgt  | cccttttaag  | aaaagtcttt  | 193080 |
| cggatgcgcc  | ccgtgttgtg  | tgctcgattt  | tagttttgac  | tctgggggttg | ggagcgcttg  | 193140 |
| tttgtggtat  | tgccattact  | tggtggtgtg  | tcccgaggat  | tattttaatg  | gggggaattt  | 193200 |
| gcgctatagt  | tttaggtgca  | atttcttttag | ctttaagtct  | attttgggtg  | tgggggtttat | 193260 |
| tttctaattg  | ttgtggttct  | aagagagttt  | taccgggtga  | gggattgcta  | cgggataagc  | 193320 |
| tttttagatgg | tggattttca  | agagcggcac  | cttcaggaat  | gggacttccg  | ggtgatggat  | 193380 |
| ctccaagagc  | gtcaacgcca  | tcttgccatg  | aggaacttca  | agcagagata  | caggcagtta  | 193440 |
| ctcaagctat  | cgatcagatg  | tcagatgatt  | gactctaaag  | cgtagaggta  | cttaaggggag | 193500 |
| aggctttgct  | aatcagtaaa  | gaaactttta  | tacaagtaag  | atctaagttg  | aataacttaa  | 193560 |
| aaagataatg  | aataaaaaaca | aaatagcatg  | ggggaccaat  | ggctgttcaa  | tctataaaag  | 193620 |
| aagccgtaac  | atcagccgca  | acatcagtag  | gatgtgtaaa  | ctgttctaga  | gaggctatac  | 193680 |
| cagcatttaa  | tacagaggag  | agagcaacga  | gtattgctag  | atctgttata  | gcagctatca  | 193740 |
| ttgctgttgt  | agctatctcc  | ttactcggac  | taggtcttgt  | agttcttgct  | ggttgctgtc  | 193800 |
| cttttaggaat | ggctgcgggt  | gctataacaa  | tgctgctggg  | tgtagcatta  | ttagcttggg  | 193860 |
| caatactgat  | tactttgaga  | ctgcttaata  | tacctaaagg  | tgaaataaccg | agtccaggga  | 193920 |
| acaacggtga  | gcctaataaa  | agaaattcag  | caactcctcc  | tctagagggt  | ggtgttcag   | 193980 |
| gagaagccgg  | tgcggcgagg  | gggtcacctt  | taacccaact  | tgatctcaat  | tcaggggcgg  | 194040 |
| gaagttagat  | tttttatcta  | acctactaag  | ttagtatttt  | aactgtaggt  | ttttccttcc  | 194100 |
| gttgtttttaa | aagaacctca  | agaataacta  | gaggttcttg  | tttgtttatt  | gcaatcttcg  | 194160 |
| tttttgctat  | ctatagttaa  | cttatataaa  | tataaggcaa  | atggtggaga  | gttagctcta  | 194220 |
| tggaaagtga  | gaaagatata  | ggagctaagt  | tttttaggtga | ctataggatt  | ctctatcgca  | 194280 |
| aggggcagag  | cctatggagc  | gaagatcttt  | tagccgaaca  | tcgatttata  | aaaaaacgtt  | 194340 |
| accttattcg  | attacttctt  | cctgatctag  | gaagttctca  | accattcatg  | gaagcttttc  | 194400 |
| atgatgttgt  | tgttaaacta  | gcaaaattaa  | accatccagg  | catcctcagt  | atagaaaatg  | 194460 |
| tttctgaatc  | tgagggaaga  | tgtttcttgg  | taacacaaga  | gcaagacatc  | cccatccttt  | 194520 |
| cactaacgca  | atatttataaa | agtattcccc  | gcaaaacttac | agagctagaa  | attgtagata  | 194580 |
| tgtgaagcca  | actcgtctct  | cttttagatt  | atgtgcattc  | agaaggactg  | gctcaagaag  | 194640 |
| agtgaatct   | tgattctgtc  | tatatctata  | ttttgaatgg  | tgttcctaaa  | gtcatactcc  | 194700 |
| ctgatctggg  | gtttgcttca  | ttgataaaag  | aacgtatttt  | ggacgggttt  | atttcagatg  | 194760 |
| aggagaatcg  | agaatctaaa  | ataaaagaaa  | gggtactact  | tcacacttca  | gaaggaaaac  | 194820 |
| aaggtagaga  | agatacgtat  | gcttttgggtg | ctatcaccta  | ttatttactt  | tttggttttc  | 194880 |
| ttcctcaagg  | cattttccct  | atgccttcga  | aagttttttc  | tgattttatc  | tatgattggg  | 194940 |
| attttttaat  | tagctcttgt  | ttaagttgtt  | ttatggaaga  | aagggcaaaa  | gaacttttcc  | 195000 |
| ccttaataag  | aaaaaaaaact | ttaggagaag  | agctgcaaaa  | tggtgtcact  | aactgtatag  | 195060 |
| aaagctcttt  | aaggggaagtg | ccagatcctt  | tggaatcttc  | tcagaatctt  | cctcaagcgg  | 195120 |

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|-------------|-------------|-------------|-------------|-------------|-------------|--------|
| tccttaaagt  | aggggaaacg  | aaggtaagtc  | accagcagaa  | ggaatctgcg  | gaacatttag  | 195180 |
| aatttgtgtt  | agtggagca   | tgctccatag  | atgaagccat  | ggataccgct  | atagaatccg  | 195240 |
| aaagttagttc | tggagttgag  | gaggaagggg  | attccctagc  | tctacagtct  | ttatttagttc | 195300 |
| gggaaccagt  | agtgagtcgt  | tatgtagaag  | ctgagaaaga  | agaacccaaa  | ccgcaaccga  | 195360 |
| tacttacaga  | aatggtttta  | atagagggag  | gagaattctc  | ccgaggaagt  | gtcgaagggc  | 195420 |
| aacgtgatga  | gcttcctgta  | cataaggtaa  | ttttacatag  | ctttttctta  | gatgttcac   | 195480 |
| ctgtgacgaa  | cgaacagttt  | aatcgttatt  | tagaatgttg  | tggtagtga   | caggataagt  | 195540 |
| attataatga  | gttaatccga  | ttgcgagatt  | ctcgtataca  | gcgtcggtcg  | ggtaggcttg  | 195600 |
| ttatagagcc  | aggttatgct  | aagcaccctg  | tcgttggggg  | tacttggtat  | ggagcctcag  | 195660 |
| ggtatgcaga  | atggatagga  | aaacgcctgc  | ctacagaagc  | tgaatgggaa  | atagctgctt  | 195720 |
| ctggcggggg  | ggcttgctac  | gctatccctg  | tggggaggaa  | atcgaaaaaa  | gccggggcaa  | 195780 |
| ttttttcact  | gcggatacga  | caacagtcac  | gagttatcca  | cccaatcctt  | atggcctcta  | 195840 |
| tgatattgga  | gggaatgtct  | acgagtggtg  | ccaagattgg  | tatgggtatg  | atttttatga  | 195900 |
| aatttctgct  | caagagccag  | agagtcctca  | aggtcctgct  | caaggagtct  | atcgggtgct  | 195960 |
| aagaggggga  | tgttgggaaga | gcttaaaaga  | tgatctctgc  | tgtgctcacc  | gccatcgtaa  | 196020 |
| taatcctggg  | gctgtaaata  | gtacgtatgg  | ttttaggtgc  | gctaaaaata  | tcaattaaga  | 196080 |
| gaggttcatg  | aaggaagaga  | attcacaagc  | acactactta  | gctttatgtc  | gtgaattaga  | 196140 |
| agaccatgat  | tattcttatt  | atgtgttgca  | tcgtcctaga  | atctctgatt  | atgaatatga  | 196200 |
| catgaaatta  | cggaagcttc  | ttgaaataga  | gagaagtcac  | cccgaatgga  | aagtcttatg  | 196260 |
| gtctccctca  | acacgtctcg  | gagatcgctc  | ctctggaact  | ttttctgtgg  | tttcccataa  | 196320 |
| ggaaccgatg  | ctttccattg  | ccaatagcta  | ttctaaagaa  | gaactaagtg  | agtttttttc  | 196380 |
| tagggtagaa  | aaatccctag  | gtacaagtc   | acgttatata  | gtagaactta  | aaatcgatgg  | 196440 |
| gattgcagta  | gcaatacggt  | atgaagatcg  | tgtgttggtt  | caagcactca  | gccgaggaaa  | 196500 |
| tggaaagcag  | ggagaggata  | tcacatcgaa  | tattcgaaca  | atagctcctt  | tgcttttaag  | 196560 |
| acttccagaa  | gatgctccag  | agtttattga  | agtacgtggc  | gaggtcttct  | tctcttattc  | 196620 |
| tacgtttcaa  | attatcaatg  | agaagcagca  | acaattagag  | aaaactattt  | ttgccaaccc  | 196680 |
| gagaaatgct  | gcaggaggtg  | ccttaaagtt  | actttctcct  | caagaaagtc  | gcaaacgtaa  | 196740 |
| attagaaatt  | tctatctata  | atctcattgc  | tccaggagat  | aacgattctc  | attatgaaaa  | 196800 |
| tcttcagcgc  | tgcttgaat   | ggggatttcc  | tgtatctggg  | aaaccaagat  | tgtgctctac  | 196860 |
| cccagaggaa  | gtgatctcag  | ttttaaagac  | tatagaaact  | gagagagctt  | ccttgccctat | 196920 |
| ggaaatcgat  | ggtgctgtca  | tcaaggtaga  | cagtttgcca  | agtcagagag  | ttcttgaggc  | 196980 |
| cacaggga    | cactatagat  | gggccttagc  | ttataaatat  | gccccagagg  | aagcagagac  | 197040 |
| ctctcttgag  | gatattctag  | ttcaagtagc  | aagaacggga  | gtctcgactc  | ctgtagctaa  | 197100 |
| actcactcct  | gtactgttgt  | cagggtcttt  | agtatctaga  | gcgtctctat  | acaatgaaga  | 197160 |
| tgagattcat  | agaaaagaca  | tccgtattgg  | tgataccgtt  | tgtgttgcta  | aagggtggaga | 197220 |
| ggtgattcca  | aaagtagttc  | gggtatgcag  | agaaaaacgt  | cctgaagggt  | ctgaagtttg  | 197280 |
| gaatatgcct  | gaattctgcc  | ctgtctgcca  | tagtcacgta  | gttcgggaag  | aagatagagt  | 197340 |
| ttctgtgcgt  | tgtgtcaatc  | ctgagtgtgt  | tgaggagct   | attgaaaaaa  | ttcgtttttt  | 197400 |
| tgttggctcg  | ggagctttaa  | atatcgatca  | tttaggggtg  | aaggtaataca | caaagctggt  | 197460 |
| tgaattaggg  | ttagtgcaca  | cgtgtgcgga  | cctatttcat  | ctgactactg  | aagatttaac  | 197520 |
| gcaaattccc  | gggatacggg  | aacgctctgc  | aagaaatatt  | ctagagagta  | tcgagcaagc  | 197580 |
| taaacatgtg  | gatctagatc  | gttttctgtc  | tgctctgggg  | attcctctca  | ttggaattgg  | 197640 |
| tgttgctact  | gtactagctg  | gccacttcga  | gactttagat  | cgggtaattt  | ccgcgacttt  | 197700 |
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| tttttcagac  | tctacgcac   | ttaacgaaat  | caagaaaatg  | caggatttag  | gagtgtgtat  | 197820 |
| atctccttat  | cataaatcag  | gatctacgtg  | ttttggcaag  | gcttttgtga  | tcacagggac  | 197880 |
| gtagagggga  | atgtctcggt  | tagatgcaga  | aactgctatc  | cggaattgtg  | ggggtaagggt | 197940 |
| aggctcctct  | gtctcgaaac  | agaccgatta  | cgtagttatg  | gggaataacc  | caggatctaa  | 198000 |
| attagagaag  | gctaggaaat  | tgggagtcct  | tatcttagat  | caagaagcct  | ttacaaatct  | 198060 |
| aattcattta  | gaataattta  | ttttaaaatt  | ttcttaatac  | attaattctt  | atttgtaaaa  | 198120 |
| gttttattta  | aattatttat  | tataaattct  | tttacagcta  | taattgtccg  | tattttataa  | 198180 |
| gtttttttgt  | tcttttggga  | gtaaacatgg  | cttcttcttc  | aaacaattcg  | actaaacagg  | 198240 |
| acggcatacc  | atcttgggta  | aacccaaatg  | tccagtgga   | tcgagcgctc  | cagggtgggtg | 198300 |
| atcaagaagc  | gaattctcta  | actccagagg  | ctcaaacctc  | acgtagctgg  | ttttccgac   | 198360 |
| gcaagcattt  | tcttgaagtc  | ttagacgtta  | gtctagagga  | gatggagaa   | aatgacctta  | 198420 |
| agaaatactc  | tagatataag  | acgattatcc  | tgattgccac  | gctgggtcact | gttgcgatta  | 198480 |
| cctgtatcgt  | tcctatctct  | atgggtgtttg | gtateccgat  | gtgggtgccc  | tgtcttattt  | 198540 |
| tatttggagc  | gggtctttct  | tcggcttttc  | tttctcatcg  | tcttcaatct  | aagtgcaggg  | 198600 |
| agatccattt  | aagataccga  | gcgtaccaga  | tttatcgcca  | gcagctgttg  | agtcaggtacc | 198660 |
| ctgactttgag | aaagcttact  | ctctataaat  | atagatttac  | ccatgtcaaa  | ccgaaaaagg  | 198720 |
| gatttgttgg  | taaaactcgt  | gaaaatttgc  | gccctgattt  | gcataaaaa   | aaggacgatg  | 198780 |
| ggggtgctgc  | tgacagactcc | agatttagatt | ttgctgggata | tggagtaaa   | cattatcaga  | 198840 |
| cggatgctct  | acttggagtt  | tcagggtgtta | atagtgtaga  | atggcaacgt  | cttgctctct  | 198900 |
| tgattatgag  | tgtaagaac   | gacattttta  | atgatgtggg  | aagcagagag  | cccattgata  | 198960 |

|             |             |             |             |             |             |        |
|-------------|-------------|-------------|-------------|-------------|-------------|--------|
| aagcgcaaag  | gtctgcttta  | gtagtcagtg  | gtaaggatat  | tggaggggag  | attcagcctg  | 199020 |
| gaggtatttt  | agatatttcc  | agagatatcc  | tagcgatctg  | tggctacggg  | atgaatgtag  | 199080 |
| gtgttgaggg  | gaagaaagct  | atagaccagt  | ataagaagtg  | gtatctcaat  | agtagtacat  | 199140 |
| ttattgcttg  | gaatccgcag  | cttcttgcta  | ttgccagtc   | ctatttacta  | gaacaacaac  | 199200 |
| gacatctaga  | ttatgctgct  | aagattttcc  | aagatctttc  | cgcattgacg  | acagcccatg  | 199260 |
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gcagagacaa tagggattgt gcttgcatga atggctttta ctaagatttc ttcgttaaag 1229340
gccagagat cttcaatact tctcctccc cgagcaataa taagaacgtc agcgaggttc 1229400
tcagcgttca tcaattcaat agccttggag atttcatgag ctgcagagtt cccttggaca 1229460
gtgacgggat aaactaaaat tttatagttg cgagcacgcc gggagagtac acgtaagata 1229520
tcttggatca cagctcctgt tgggctagta atgacgcaa tgcattgagg agcaaagggg 1229580
aggggcttct ttttttcagt tgcgaaatac ccttcagcag tcagacgtct tttgtttct 1229640
tcaaattttt gtaggagatc gccctctcca gcgtaaacca aagcatgggc tacaatttgg 1229700
tactgtcttc taggagcata gaccgcaagc ttcccatgaa taataactgc atccccatct 1229760
ttgggtttgc ggtcatagta cttactttta aaatgaaaaa aggcaccatt aagaaacgct 1229820
tggctatcct taatcccaaa atagagatga ccacttggtt gtagggagac gttgctaagc 1229880
tcgcccttca ctatgatctg acaaaaattg gactcaagaa gagtcttaat gcgttcagtt 1229940
agggatgcaa cagcctgtgg aggcgatgac ataacaggaa agcctctcta gagaattcag 1230000
tgactttaga gtaagtgatt ttctg 1230025

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&lt;210&gt;2

&lt;211&gt;251

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;2

```

Met Arg Ile Lys Phe Arg Glu Asn Lys Glu Arg Lys Met Thr Arg Gln
 1           5           10           15
Ser Tyr Val Leu Gly Asn Trp Lys Met His Lys Thr Ile Gln Glu Ala
          20           25           30
Lys Glu Tyr Val Gln Thr Leu Ala Ser Xaa Leu Gln Gly Glu Pro Leu
          35           40           45
Ser Cys Thr Ile Gly Ile Ala Ser Pro Phe Thr Ser Leu Arg Ala Ile
          50           55           60
His Glu Met Ile Asn Thr Thr Gly Ala Phe Leu Trp Leu Gly Ala Gln
          65           70           75           80
Asn Val His Pro Glu Leu Ser Gly Ala Phe Thr Gly Glu Ile Ser Leu
          85           90           95
Pro Met Leu Lys Glu Val Gly Val Glu Phe Val Leu Val Gly His Ser
          100          105          110
Glu Arg Arg His Ile Phe Gly Glu Ser Asp Ala Phe Ile Ala Ser Lys
          115          120          125
Val Lys Ser Val Ala Gln Ala Gly Leu Val Pro Val Leu Cys Val Gly
          130          135          140
Glu Ser Leu Glu Val Arg Glu Glu Gly Lys Ala His Gln Val Ile Lys
          145          150          155          160
Lys Gln Leu Leu Leu Gly Leu Glu Gln Met Asp Asn Gly Ser Glu Phe
          165          170          175
Leu Ile Ala Tyr Glu Pro Val Trp Ala Ile Gly Thr Gly Lys Val Ala
          180          185          190
Glu Ala Ser Asp Val Gln Asp Ile His Met Phe Cys Arg Glu Val Val
          195          200          205

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Ala Glu Arg Phe Ser Glu Ala Thr Ala Glu Glu Ile Ser Ile Leu Tyr  
 210 215 220  
 Gly Gly Ser Val Lys Val Asp Asn Ala Gln Arg Phe Gly Gln Cys Ser  
 225 230 235 240  
 Asp Val Asp Gly Leu Leu Val Gly Gly Xaa Leu  
 245 250

&lt;210&gt;3

&lt;211&gt;119

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;3

Ser Met Ser Leu Asn Lys Glu Ile Gly Met Thr Val Leu Phe Tyr Ala  
 1 5 10 15  
 Phe Leu Phe Ile Phe Leu Phe Leu Cys Val Ile Leu Cys Gly Leu Ile  
 20 25 30  
 Leu Val Gln Glu Ser Lys Ser Met Gly Leu Gly Ser Ser Phe Gly Val  
 35 40 45  
 Asp Ser Gly Asp Ser Val Phe Gly Val Ser Thr Pro Asp Ile Leu Lys  
 50 55 60  
 Lys Val Thr Ser Xaa Cys Ala Val Ala Phe Cys Ile Gly Cys Leu Leu  
 65 70 75 80  
 Leu Ser Phe Ser Thr Asn Leu Leu Gly Lys Lys Leu Asp Ala Lys Glu  
 85 90 95  
 Phe Leu Leu Pro Ala Ala Glu Glu Ser Asp Thr Gln Ala Ser Ser Glu  
 100 105 110  
 Ser Val Glu Ala Asp Glu Ser  
 115

&lt;210&gt;4

&lt;211&gt;204

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;4

Val Leu Val Val Arg Asp Phe Phe Thr Glu Leu Cys Gln Ala His Val  
 1 5 10 15  
 Gln Thr Met Ile Arg Arg Leu Glu Tyr Tyr Gly Ser Pro Ile Leu Arg  
 20 25 30  
 Lys Lys Ser Ser Pro Ile Ala Glu Ile Thr Asp Glu Ile Arg Asn Leu  
 35 40 45  
 Val Ser Asp Met Cys Asp Thr Met Glu Ala His Arg Gly Val Gly Leu  
 50 55 60  
 Ala Ala Pro Gln Val Gly Lys Asn Val Ser Leu Phe Val Met Cys Val  
 65 70 75 80  
 Asp Arg Glu Thr Glu Asp Gly Glu Leu Ile Phe Ser Glu Ser Pro Arg  
 85 90 95  
 Val Phe Ile Asn Pro Val Leu Ser Asp Pro Ser Glu Thr Pro Ile Ile  
 100 105 110  
 Gly Lys Glu Gly Cys Leu Ser Ile Pro Gly Leu Arg Gly Glu Val Phe  
 115 120 125  
 Arg Pro Gln Lys Ile Thr Val Thr Ala Met Asp Leu Asn Gly Lys Ile  
 130 135 140  
 Phe Thr Glu His Leu Glu Gly Phe Thr Ala Arg Ile Ile Met His Glu  
 145 150 155 160  
 Thr Asp His Leu Asn Gly Val Leu Tyr Ile Asp Leu Met Glu Glu Pro  
 165 170 175  
 Lys Asp Pro Lys Lys Phe Lys Ala Ser Leu Glu Lys Ile Lys Arg Arg  
 180 185 190  
 Tyr Asn Thr His Leu Ser Lys Glu Glu Leu Val Ser  
 195 200

&lt;210&gt;5

&lt;211&gt;301

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;5

Met Ser Cys Met Pro Pro Pro Phe Val Val Thr Leu Thr Thr Ser Ala

```

1           5           10           15
Gln Asn Asn Leu Arg Asp Gln Leu Lys Glu Lys Asn Phe Ile Phe Ser
      20      25      30
Gln Pro Gln Asn Thr Val Phe Gln Ala Arg Ser Asn Thr Val Thr Cys
      35      40      45
Thr Leu Tyr Pro Ser Gly Lys Leu Val Ile Gln Gly Lys Gly Ser Glu
      50      55      60
Glu Phe Ile Glu Phe Phe Leu Glu Pro Glu Ile Leu His Thr Phe Thr
      65      70      75      80
His Ala Arg Val Glu Gln Asp Leu Arg Pro Arg Leu Gly Val Asp Glu
      85      90      95
Ser Gly Lys Gly Asp Phe Phe Gly Pro Leu Cys Ile Ala Ala Val Tyr
      100      105      110
Ala Ser Asn Ala Glu Ile Leu Lys Lys Leu Tyr Glu Asn Lys Val Gln
      115      120      125
Asp Ser Lys Asn Leu Lys Asp Thr Lys Ile Ala Ser Leu Ala Arg Ile
      130      135      140
Ile Arg Ser Leu Cys Val Cys Asp Val Ile Ile Leu Tyr Pro Glu Lys
      145      150      155      160
Tyr Asn Glu Leu Tyr Gly Lys Phe Gln Asn Leu Asn Thr Leu Leu Ala
      165      170      175
Trp Ala His Ala Thr Val Ile Asn Asn Leu Ala Pro Lys Pro Ala Gly
      180      185      190
Asp Val Phe Ala Ile Ser Asp Gln Phe Ala Ala Ser Glu Tyr Thr Leu
      195      200      205
Leu Lys Ala Leu Gln Lys Lys Glu Thr Asp Ile Thr Leu Ile Gln Lys
      210      215      220
Pro Arg Ala Glu Gln Asp Val Val Val Ala Ala Ala Ser Ile Leu Ala
      225      230      235      240
Arg Asp Ala Phe Val Gln Ser Ile Gln Lys Leu Glu Glu Gln Tyr Gln
      245      250      255
Val Gln Leu Pro Lys Gly Ala Gly Phe Asn Val Lys Ala Ala Gly Arg
      260      265      270
Glu Ile Ala Lys Gln Arg Gly Lys Glu Leu Leu Ala Lys Ile Ser Lys
      275      280      285
Thr His Phe Lys Thr Phe Asp Glu Ile Cys Ser Gly Lys
      290      295      300

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&lt;210&gt;6

&lt;211&gt;143

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;6

```

Met Gln Glu His Ile His Lys Glu Leu Leu His Leu Gly Glu Ile Phe
1           5           10           15
Arg Ser Ser Arg Glu Ser Gln Ser Leu Ser Leu Lys Asp Val Glu Ala
      20      25      30
Ala Thr Ser Ile Arg Tyr Ser Cys Leu Glu Ala Ile Glu Gln Gly Cys
      35      40      45
Leu Gly Lys Leu Ile Ser Pro Val Tyr Ala Gln Gly Phe Ile Lys Lys
      50      55      60
Tyr Ala Thr Tyr Leu Gly Leu Asp Gly Asp Ser Ile Leu Gln Glu His
      65      70      75      80
Pro Tyr Val Met Lys Ile Phe Lys Glu Phe Ser Asp His Asn Met Glu
      85      90      95
Met Leu Leu Asp Leu Glu Ser Met Gly Gly Arg Asn Ser Pro Glu Arg
      100      105      110
Ala Ile His Ser Trp Ser Asn Leu Trp Trp Ala Gly Leu Ile Ile Ile
      115      120      125
Gly Gly Ile Met Val Trp Trp Leu Gly Ser Leu Phe Ser Ile Phe
      130      135      140

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&lt;210&gt;7

&lt;211&gt;460

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;7.

```

Arg Arg Ser Leu Met Thr Phe Pro Cys Gly Asn Cys Asn Cys Tyr Tyr
 1      5      10      15
Arg Glu Thr Pro Pro Pro Asn Pro Gly Gly Glu Asp Ile Pro Leu Gln
      20      25      30
Glu Gly Gly Gln Ser Gly Ser Gln Gly Gly Arg Val Ile Thr Gln Gln
      35      40      45
Pro Gly Thr Gly Gly Arg Glu Met Gly Ile Ser Leu Gly Ser Asp Asn
      50      55      60
Val Leu Gly Met Val Glu Gln Ala Gly Ser Leu Leu Asn Asn Leu Leu
      65      70      75      80
Asp Ser Ala Arg Met Gln Arg Leu Gly His Tyr Cys Tyr Arg Thr Gly
      85      90      95
Thr Pro Trp Cys Arg Glu His Cys Pro Gly Phe Leu Gln Trp Ile Trp
      100      105      110
Gly Gly Cys Cys Ala Cys Cys Leu Glu Thr Val Asp Asp Pro Asp Asn
      115      120      125
Pro Ser Ala Gln Phe Leu Gln Gln Leu Ile Gln Gln Tyr Gly Pro Ile
      130      135      140
Cys Val Gly Met Ser Phe Gln Gln Leu Pro His Cys Thr Gln Lys Ile
      145      150      155      160
Glu Gln Gly Glu Pro Leu Gly Asp Gly Asp Lys Gln Glu Val Glu Asn
      165      170      175
Gly Cys Lys Leu His Arg Glu Leu Leu Lys Ala Ala Gln Pro Arg Cys
      180      185      190
Met Gly Glu Ser Leu Val Lys Leu Leu Gln Asn Asn Gly Leu Gly Glu
      195      200      205
Asp Met Gln Gln Thr Pro Pro Trp Ser Leu Ile Leu Gln Ala Val Ser
      210      215      220
Glu Gly Ala Leu Ser Phe Val Thr Ser Ser Asp Asn Pro Pro Thr Cys
      225      230      235      240
Trp Ile Leu Gln Pro Glu Gln Gln Pro Cys Pro Pro Pro Pro Thr Asp
      245      250      255
Glu Glu Gln Leu Gln Gly Ala Val Gly Gly Ala Pro Ala Pro Gln Gln
      260      265      270
Lys Lys His Pro Ala Gln Glu Cys Arg Val Thr Cys Lys Leu Asn Phe
      275      280      285
Arg Thr Leu Leu Gln Lys Leu Ser Arg Leu Glu Val Leu Ser Leu Glu
      290      295      300
Ser Gly Tyr Lys Gly Pro Leu Gly Gln Ala Ala Lys Gln Ile Val Asp
      305      310      315      320
Leu Ile Lys Lys Ser Leu Lys Arg Leu Val Ala Ser Asp Leu Ala Thr
      325      330      335
Phe Leu Gly Pro Gly Ile Gly Leu Ser Leu Glu Ser Gln Val Phe Glu
      340      345      350
Val Leu Val Leu Leu Cys Leu Leu Ser Lys Gly Tyr Leu Pro Leu Asp
      355      360      365
Pro Leu His Pro Glu Gln Thr Val Leu Asp Pro Arg Val Gln Gly Pro
      370      375      380
Trp Gln Arg Ile Leu Arg Lys Val Leu Val Thr Thr Thr Ala Gly Glu
      385      390      395      400
Asn Ile Trp Arg Gln Thr Gln Gly Glu Ala Pro Arg Gln Ala Pro Pro
      405      410      415
Pro Pro Asp Pro Trp Asp Asp Asp Glu Ile Glu Arg Asp Gly Ile Val
      420      425      430
Thr Gly Gly Gly Phe Gly Ile Pro Cys Gln Cys Leu Arg Cys Trp Arg
      435      440      445
Lys Leu Pro Thr Glu Lys Arg Pro Asn Arg Trp Leu
      450      455      460

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&lt;210&gt;8

&lt;211&gt;484

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;8

Lys Gly Thr Thr Met Val Cys Pro Asn Asn Ser Trp Phe Arg Met Cys  
 1 5 10 15  
 Gly Asn Phe Asn Cys Glu Trp Val Glu Val Thr Thr Thr Glu Glu Thr  
 20 25 30  
 Thr Arg Gln Ser Ala Ser Asp Ile Ser Glu Glu Ala Gly Ser Ser Gly  
 35 40 45  
 Gly Ala Ala Pro Ile Thr Thr Gln Pro Thr Lys Ile Thr Lys Val Glu  
 50 55 60  
 Lys Arg Val Gln Phe Asn Thr Ala Gln Gly Asp Glu Ser Thr Ile His  
 65 70 75 80  
 Met Ile Gln Glu Ala Gly Glu Leu Val Asp Ser Ile Leu Ser His Arg  
 85 90 95  
 Arg Thr Gln Gly Cys Thr Glu Tyr Cys Tyr Asp Ser Tyr Ala Thr Gly  
 100 105 110  
 Cys Gly Gln Arg Cys Gly Ser Phe Gly Arg Leu Ile Cys Gly Thr Tyr  
 115 120 125  
 Lys Ala Cys Cys Leu Asp Arg Glu Asp Asn Gln Val Ala Gly Leu Val  
 130 135 140  
 His Glu Cys Glu Gln Thr His Gly Pro Ile Ala Val Ala Leu Ala Ala  
 145 150 155 160  
 Lys Thr Met Gly Leu Asn Leu Met Glu Leu Val Glu Lys Asn Thr Ile  
 165 170 175  
 Leu Ser Glu Glu Gln Lys Asn Glu Phe Arg Gln His Cys Ser Glu Ala  
 180 185 190  
 Lys Thr Gln Leu Tyr Gly Thr Met Gln Ser Leu Ser Gln Asn Phe Phe  
 195 200 205  
 Leu Glu Gly Val Asn Ser Ile Arg Glu Arg Gly Leu Asp Asp Ser Leu  
 210 215 220  
 Val Gln Ala Val Leu Ser Phe Ile Ala Thr Arg Ser Trp Glu Lys Thr  
 225 230 235 240  
 Ile Glu Ser Glu Glu Ala Ser Gly Thr Ser Ser Ala Ser Asn Ser Thr  
 245 250 255  
 Arg Ile Pro Ala Cys Tyr Ile Leu Asn Thr Ser Pro Leu Thr Thr Ser  
 260 265 270  
 Arg Leu Ser Cys Gly Ser Arg Asp Ala Arg Arg Pro Ser Ser Val Gly  
 275 280 285  
 Ala Glu Pro Gln Tyr Val Ala Lys Lys Tyr Asn Asp Asn Gly Met Ala  
 290 295 300  
 Arg Gln Leu Gly Lys Ile Gln Val Thr Asn Leu Lys Thr Gly Asp Phe  
 305 310 315 320  
 Ser Ala Leu Gly Pro Phe Gly Leu Leu Ile Val Lys Met Leu Asn Ser  
 325 330 335  
 Phe Leu Leu Ser Ala Ser Gln Ser Thr Ser Ser Ile Leu Lys His Thr  
 340 345 350  
 Gly Gly Glu Ile Cys Tyr Thr Cys Pro Asn Phe Arg Asp Ile Val Val  
 355 360 365  
 Leu Leu Met Leu Ala Ile Gly Tyr Cys Pro Ala Asn Thr Asp Glu Thr  
 370 375 380  
 Ser Val Val Asp Ile His Met Ile Asp Asp Pro Ile Met Thr Ile Phe  
 385 390 395 400  
 Tyr Arg Leu Gln Tyr Ser Tyr Arg Thr Gly Lys Thr Ser Ala Ser Phe  
 405 410 415  
 Leu Lys Lys Lys Pro Ser Leu Val Arg Gln Glu Ser Leu Asp Cys Pro  
 420 425 430  
 Thr Pro Ala Glu Ser Val Pro Leu Met Ser Ser Leu Glu Glu Asp  
 435 440 445  
 Glu Asn Glu Asp Asp Asp Glu Asp Gly Asn Leu Ala Tyr Gln Gln Arg  
 450 455 460  
 Ile Leu Glu Cys Ser Gly His Leu Gln Thr Leu Phe Leu Gly Ile Lys  
 465 470 475 480  
 Ile Asn Lys Glu

&lt;210&gt;9

&lt;211&gt;304

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;9

Lys Lys Asp Tyr Ile Leu His Ala Asn Trp Cys Cys Trp Lys Gln Met  
 1 5 10 15  
 Leu Lys Ile Gln Lys Lys Arg Met Cys Val Ser Val Val Ile Thr Val  
 20 25 30  
 Gly Ala Ile Val Gly Phe Phe Asn Ser Ala Asp Ala Ala Pro Lys Lys  
 35 40 45  
 Lys Lys Ile Pro Ile Gln Ile Leu Tyr Ser Phe Thr Lys Val Ser Ser  
 50 55 60  
 Tyr Leu Lys Asn Glu Asp Ala Ser Thr Ile Phe Cys Val Asp Val Asp  
 65 70 75 80  
 Arg Gly Leu Leu Gln His Arg Tyr Leu Gly Ser Pro Gly Trp Gln Glu  
 85 90 95  
 Thr Arg Arg Arg Gln Leu Phe Lys Ser Leu Glu Asn Gln Ser Tyr Gly  
 100 105 110  
 Asn Glu Arg Leu Gly Glu Glu Thr Leu Ala Ile Asp Ile Phe Arg Asn  
 115 120 125  
 Lys Glu Cys Leu Glu Ser Glu Ile Pro Glu Gln Met Glu Ala Ile Leu  
 130 135 140  
 Ala Asn Ser Ser Ala Leu Val Leu Gly Ile Ser Ser Phe Gly Ile Thr  
 145 150 155 160  
 Gly Ile Pro Ala Thr Leu His Ser Leu Leu Arg Gln Asn Leu Ser Phe  
 165 170 175  
 Gln Lys Arg Ser Ile Ala Ser Glu Ser Phe Leu Leu Lys Ile Asp Ser  
 180 185 190  
 Ala Pro Ser Asp Ala Ser Val Phe Tyr Lys Gly Val Leu Phe Arg Gly  
 195 200 205  
 Glu Thr Ala Ile Val Asp Ala Leu Ser Gln Leu Phe Ala Gln Leu Asp  
 210 215 220  
 Leu Ser Pro Lys Lys Ile Ile Phe Leu Gly Glu Asp Pro Glu Val Val  
 225 230 235 240  
 Gln Ala Val Gly Ser Ala Cys Ile Gly Trp Gly Met Asn Phe Leu Gly  
 245 250 255  
 Leu Val Tyr Tyr Pro Ala Gln Glu Ser Leu Phe Ser Tyr Val His Pro  
 260 265 270  
 Tyr Ser Thr Ala Thr Glu Leu Gln Glu Ala Gln Gly Leu Gln Val Ile  
 275 280 285  
 Ser Asp Glu Val Ala Gln Leu Thr Leu Asn Ala Leu Pro Lys Met Asn  
 290 295 300

&lt;210&gt;10

&lt;211&gt;277

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;10

Arg Ile Phe Met Arg Arg Tyr Leu Phe Met Val Leu Ala Leu Cys Leu  
 1 5 10 15  
 Tyr Arg Ala Ala Pro Leu Glu Ala Val Val Ile Lys Ile Thr Asp Ala  
 20 25 30  
 Gln Ala Val Leu Lys Phe Ala Arg Glu Lys Thr Leu Val Cys Phe Asn  
 35 40 45  
 Ile Glu Asp Thr Val Val Phe Pro Lys Gln Met Val Gly Gln Ser Ala  
 50 55 60  
 Trp Leu Tyr Asn Arg Glu Leu Asp Leu Lys Thr Thr Leu Ser Glu Glu  
 65 70 75 80  
 Gln Ala Arg Glu Gln Ala Phe Leu Glu Trp Met Gly Ile Ser Phe Leu  
 85 90 95  
 Val Asp Tyr Glu Leu Val Ser Ala Asn Leu Arg Asn Val Leu Thr Gly  
 100 105 110  
 Leu Ser Leu Lys Arg Ser Trp Val Leu Gly Ile Ser Gln Arg Pro Val  
 115 120 125  
 His Leu Ile Lys Asn Thr Leu Arg Ile Leu Arg Ser Phe Asn Ile Asp  
 130 135 140



Phe Thr Ser Cys Pro Ala Ile Cys Glu Asp Gly Trp Leu Ser His Pro  
 145 150 155 160  
 Thr Lys Asp Thr Thr Phe Asp Gln Ala Met Ala Ile Glu Lys Asn Ile  
 165 170 175  
 Leu Phe Val Gly Ser Leu Lys Asn Gly Gln Pro Met Asp Ala Ala Leu  
 180 185 190  
 Glu Val Leu Leu Ser Gly Ile Ser Ser Pro Pro Ser Gln Ile Ile Tyr  
 195 200 205  
 Val Asp Gln Asp Ala Glu Arg Leu Arg Ser Ile Gly Ala Phe Cys Lys  
 210 215 220  
 Lys Ala Asn Ile Tyr Phe Ile Gly Met Leu Tyr Thr Pro Ala Lys Gln  
 225 230 235 240  
 Arg Val Glu Ser Tyr Asn Pro Lys Leu Thr Ala Ile Gln Trp Ser Gln  
 245 250 255  
 Ile Arg Lys Asn Leu Ser Asp Glu Tyr Tyr Glu Ser Leu Leu Ser Tyr  
 260 265 270  
 Val Lys Ser Lys Gly  
 275

&lt;210&gt;11

&lt;211&gt;109

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;11

Lys Arg Leu Lys Asp Glu Ile Lys Tyr Thr Ser Leu Arg Arg Lys Ala  
 1 5 10 15  
 Met Leu Gly Lys Ile Ile Arg Gly Leu Ser Ser Leu Ile Val Ile Leu  
 20 25 30  
 Cys Ala Leu Asn Val Gly Leu Ile Gly Ile Thr His Asn Lys Leu Asn  
 35 40 45  
 Ile Ile Ala Lys Leu Cys Gly Gly Val Ser Thr Pro Ala Thr Gln Ile  
 50 55 60  
 Thr Tyr Ile Ile Ile Gly Ile Ala Gly Val Ile Cys Leu Leu Ser Phe  
 65 70 75 80  
 Cys Pro Phe Cys Ser Lys Lys Ser Arg His Ser His Gly Asp Ser Cys  
 85 90 95  
 Ser Ser Gly Gly Cys His Ser His His Ser Asp Lys Asn  
 100 105

&lt;210&gt;12

&lt;211&gt;102

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;12

His Met Glu Gln Phe His Leu Asp Arg Glu Glu Ile Leu Leu Leu Ala  
 1 5 10 15  
 Lys Ala Ser Ala Leu Gln Leu Ser Glu Glu Leu Ile Gln Glu Tyr Gln  
 20 25 30  
 Thr Ser Leu Ser Ala Val Ile Thr Ser Met Lys Glu Ala Leu Ala Ile  
 35 40 45  
 Glu Ile Asp Asp Ala Asp Ser Cys Glu Ser Leu Phe Met His Val Val  
 50 55 60  
 Asn Val Glu Asp Leu Arg Glu Asp Ser Val Thr Ser Asp Phe Asn Arg  
 65 70 75 80  
 Glu Glu Phe Leu Arg Asn Val Pro Glu Ser Leu Gly Gly Leu Val Lys  
 85 90 95  
 Val Pro Ala Val Ile Lys  
 100

&lt;210&gt;13

&lt;211&gt;494

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;13

Lys Ile Met Tyr Arg Tyr Ser Ala Leu Glu Leu Ala Lys Ala Val Thr  
 1 5 10 15  
 Leu Gly Glu Leu Thr Ala Thr Gly Val Thr Gln His Phe Phe His Arg

<400>14

Glu Ile Cys Gln Lys Cys Cys Ser Arg Arg Ser Ile Met Ser Ala Val  
 1 5 10 15  
 Tyr Ala Asp Trp Glu Ser Val Ile Gly Leu Glu Val His Val Glu Leu  
 20 25 30  
 Asn Thr Ala Ser Lys Leu Phe Ser Ser Ala Leu Asn Arg Phe Gly Asp  
 35 40 45  
 Glu Pro Asn Thr Asn Ile Ser Thr Val Cys Thr Gly Leu Pro Gly Ser  
 50 55 60  
 Leu Pro Val Leu Asn Gln Ser Ala Val Glu Lys Ala Val Leu Phe Gly  
 65 70 75 80  
 Cys Ala Val Glu Gly Glu Ile Ser Leu Leu Ser Arg Phe Asp Arg Lys  
 85 90 95  
 Ser Tyr Phe Tyr Pro Asp Ser Pro Arg Asn Phe Gln Ile Thr Gln Phe  
 100 105 110  
 Glu His Pro Ile Ile Arg Gly Gly Arg Ile Lys Ala Ile Val Gln Gly  
 115 120 125  
 Glu Glu Arg Tyr Phe Glu Leu Ala Gln Thr His Ile Glu Asp Asp Ala  
 130 135 140  
 Gly Met Leu Lys His Phe Gly Glu Phe Ala Gly Val Asp Tyr Asn Arg  
 145 150 155 160  
 Ala Gly Val Pro Leu Ile Glu Ile Val Ser Lys Pro Cys Met Phe Cys  
 165 170 175  
 Pro Glu Asp Gly Cys Cys Tyr Ala Thr Ser Leu Val Ser Leu Leu Asp  
 180 185 190  
 Tyr Ile Gly Ile Ser Asp Cys Asn Met Glu Glu Gly Ser Ile Arg Phe  
 195 200 205  
 Asp Val Asn Val Ser Val Arg Pro Lys Gly Ser Pro Glu Leu Arg Asn  
 210 215 220  
 Lys Val Glu Ile Lys Asn Met Asn Ser Phe Ala Phe Met Ala Gln Ala  
 225 230 235 240  
 Leu Glu Ala Glu Lys Gln Arg Gln Ile Asp Glu Tyr Leu Asn Gln Pro  
 245 250 255  
 Asn Lys Asp Pro Lys Leu Val Ile Pro Ala Ala Thr Tyr Arg Trp Asp  
 260 265 270  
 Pro Glu Lys Lys Lys Thr Val Leu Met Arg Leu Lys Glu Ser Ala Glu  
 275 280 285  
 Asp Tyr Lys Tyr Phe Pro Glu Pro Asp Leu Pro Thr Leu Gln Leu Thr  
 290 295 300  
 Glu Ser Tyr Ile Glu Arg Ile Arg Lys Thr Leu Pro Glu Leu Pro Tyr  
 305 310 315 320  
 Asp Lys Tyr His Arg Tyr Ile Gln Glu Tyr Gly Leu Ser Glu Asp Ile  
 325 330 335  
 Ala Ser Ile Leu Ile Ser Asp Lys Asn Ile Ala Thr Phe Phe Glu Val  
 340 345 350  
 Ala Cys Lys Asp Cys Lys Asn Phe Arg Ser Leu Ser Asn Trp Val Thr  
 355 360 365  
 Val Glu Phe Gly Gly Arg Cys Lys Thr Leu Gly Val Lys Leu Pro Ser  
 370 375 380  
 Ser Gly Ile Phe Pro Glu Gly Val Ala Gln Leu Val Asn Ala Ile Asp  
 385 390 395 400  
 Gln Gly Val Ile Thr Gly Lys Ile Ala Lys Glu Ile Ala Asp Leu Met  
 405 410 415  
 Met Glu Ser Pro Gly Lys Asn Pro Glu Glu Ile Leu Lys Glu Lys Pro  
 420 425 430  
 Glu Leu Leu Pro Met Ser Asp Glu Gly Glu Leu Gln Lys Ile Ile Ala  
 435 440 445  
 Glu Val Val Leu Ala Asn Pro Glu Ser Ile Val Asp Tyr Lys Asn Gly  
 450 455 460  
 Lys Thr Lys Ala Leu Gly Phe Leu Val Gly Gln Ile Met Lys Arg Thr  
 465 470 475 480  
 Ala Gly Lys Ala Pro Lys Arg Val Asn Glu Leu Leu Leu Leu Glu  
 485 490 495  
 Leu Asp Lys Gly  
 500

&lt;210&gt;15

&lt;211&gt;922

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;15

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Met Arg Phe Ser Leu Cys Gly Phe Pro Leu Val Phe Ser Phe Thr Leu
 1           5           10           15
Leu Ser Val Phe Asp Thr Ser Leu Ser Ala Thr Thr Ile Ser Leu Thr
          20           25           30
Pro Glu Asp Ser Phe His Gly Asp Ser Gln Asn Ala Glu Arg Ser Tyr
          35           40           45
Asn Val Gln Ala Gly Asp Val Tyr Ser Leu Thr Gly Asp Val Ser Ile
          50           55           60
Ser Asn Val Asp Asn Ser Ala Leu Asn Lys Ala Cys Phe Xaa Val Thr
          65           70           75           80
Ser Gly Ser Val Thr Phe Ala Gly Asn His His Gly Xaa Tyr Phe Asn
          85           90           95
Asn Ile Ser Ser Gly Thr Thr Lys Glu Gly Ala Val Leu Cys Cys Gln
          100          105          110
Asp Pro Gln Ala Thr Ala Arg Phe Ser Gly Phe Ser Thr Leu Ser Phe
          115          120          125
Asn Gln Ser Pro Gly Asp Ile Lys Glu Gln Gly Cys Leu Tyr Ser Lys
          130          135          140
Asn Ala Leu Met Leu Leu Asn Asn Tyr Val Val Arg Phe Glu Gln Asn
          145          150          155          160
Gln Ser Lys Thr Lys Gly Gly Ala Ile Ser Gly Ala Asn Val Thr Ile
          165          170          175
Val Gly Asn Tyr Asp Ser Val Ser Phe Tyr Gln Asn Ala Ala Thr Phe
          180          185          190
Gly Gly Ala Ile His Ser Ser Gly Pro Leu Gln Ile Ala Val Asn Gln
          195          200          205
Ala Glu Ile Arg Phe Ala Gln Asn Thr Ala Lys Asn Gly Ser Gly Gly
          210          215          220
Ala Leu Tyr Ser Asp Gly Asp Ile Asp Ile Asp Gln Asn Ala Tyr Val
          225          230          235          240
Leu Phe Arg Glu Asn Glu Ala Leu Thr Thr Ala Ile Gly Lys Gly Gly
          245          250          255
Ala Val Cys Cys Leu Pro Thr Ser Gly Ser Ser Thr Pro Val Pro Ile
          260          265          270
Val Thr Phe Ser Asp Asn Lys Gln Leu Val Phe Glu Arg Asn His Ser
          275          280          285
Ile Met Gly Gly Gly Ala Ile Tyr Ala Arg Lys Leu Ser Ile Ser Ser
          290          295          300
Gly Gly Pro Thr Leu Phe Ile Asn Asn Ile Ser Tyr Ala Asn Ser Gln
          305          310          315          320
Asn Leu Gly Gly Ala Ile Ala Ile Asp Thr Gly Gly Glu Ile Ser Leu
          325          330          335
Ser Ala Glu Lys Gly Thr Ile Thr Phe Gln Gly Asn Arg Thr Ser Leu
          340          345          350
Pro Phe Leu Asn Gly Ile His Leu Leu Gln Asn Ala Lys Phe Leu Lys
          355          360          365
Leu Gln Ala Arg Asn Gly Tyr Ser Ile Glu Phe Tyr Asp Pro Ile Thr
          370          375          380
Ser Glu Ala Asp Gly Ser Thr Gln Leu Asn Ile Asn Gly Asp Pro Lys
          385          390          395          400
Asn Lys Glu Tyr Thr Gly Thr Ile Leu Phe Ser Gly Glu Lys Ser Leu
          405          410          415
Ala Asn Asp Pro Arg Asp Phe Lys Ser Thr Ile Pro Gln Asn Val Asn
          420          425          430
Leu Ser Ala Gly Tyr Leu Val Ile Lys Glu Gly Ala Glu Val Thr Val
          435          440          445
Ser Lys Phe Thr Gln Ser Pro Gly Ser His Leu Val Leu Asp Leu Gly
          450          455          460
Thr Lys Leu Ile Ala Ser Lys Glu Asp Ile Ala Ile Thr Gly Leu Ala

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465 470 475 480  
 Ile Asp Ile Asp Ser Leu Ser Ser Ser Ser Thr Ala Ala Val Ile Lys  
 485 490 495  
 Ala Asn Thr Ala Asn Lys Gln Ile Ser Val Thr Asp Ser Ile Glu Leu  
 500 505 510  
 Ile Ser Pro Thr Gly Asn Ala Tyr Glu Asp Leu Arg Met Arg Asn Ser  
 515 520 525  
 Gln Thr Phe Pro Leu Leu Ser Leu Glu Pro Gly Ala Gly Gly Ser Val  
 530 535 540  
 Thr Val Thr Ala Gly Asp Phe Leu Pro Val Ser Pro His Tyr Gly Phe  
 545 550 555 560  
 Gln Gly Asn Trp Lys Leu Ala Trp Thr Gly Thr Gly Asn Lys Val Gly  
 565 570 575  
 Glu Phe Phe Trp Asp Lys Ile Asn Tyr Lys Pro Arg Pro Glu Lys Glu  
 580 585 590  
 Gly Asn Leu Val Pro Asn Ile Leu Trp Gly Asn Ala Val Asp Val Arg  
 595 600 605  
 Ser Leu Met Gln Val Gln Glu Thr His Ala Ser Ser Leu Gln Thr Asp  
 610 615 620  
 Arg Gly Leu Trp Ile Asp Gly Ile Gly Asn Leu Phe His Val Ser Ala  
 625 630 635 640  
 Ser Glu Asp Asn Ile Arg Tyr Arg His Asn Ser Gly Gly Tyr Val Leu  
 645 650 655  
 Ser Val Asn Asn Glu Ile Thr Pro Lys His Tyr Thr Ser Met Ala Phe  
 660 665 670  
 Ser Gln Leu Phe Ser Arg Asp Lys Asp Tyr Ala Val Ser Asn Asn Glu  
 675 680 685  
 Tyr Arg Met Tyr Leu Gly Ser Tyr Leu Tyr Gln Tyr Thr Thr Ser Leu  
 690 695 700  
 Gly Asn Ile Phe Arg Tyr Ala Ser Arg Asn Pro Asn Val Asn Val Gly  
 705 710 715 720  
 Ile Leu Ser Arg Arg Phe Leu Gln Asn Pro Leu Met Ile Phe His Phe  
 725 730 735  
 Leu Cys Ala Tyr Gly His Ala Thr Asn Asp Met Lys Thr Asp Tyr Ala  
 740 745 750  
 Asn Phe Pro Met Val Lys Asn Ser Trp Arg Asn Asn Cys Trp Ala Ile  
 755 760 765  
 Glu Cys Gly Gly Ser Met Pro Leu Leu Val Phe Glu Asn Gly Arg Leu  
 770 775 780  
 Phe Gln Gly Ala Ile Pro Phe Met Lys Leu Gln Leu Val Tyr Ala Tyr  
 785 790 795 800  
 Gln Gly Asp Phe Lys Glu Thr Thr Ala Asp Gly Arg Arg Phe Ser Asn  
 805 810 815  
 Gly Ser Leu Thr Ser Ile Ser Val Pro Leu Gly Ile Arg Phe Glu Lys  
 820 825 830  
 Leu Ala Leu Ser Gln Asp Val Leu Tyr Asp Phe Ser Phe Ser Tyr Ile  
 835 840 845  
 Pro Asp Ile Phe Arg Lys Asp Pro Ser Cys Glu Ala Ala Leu Val Ile  
 850 855 860  
 Ser Gly Asp Ser Trp Leu Val Pro Ala Ala His Val Ser Arg His Ala  
 865 870 875 880  
 Phe Val Gly Ser Gly Thr Gly Arg Tyr His Phe Asn Asp Tyr Thr Glu  
 885 890 895  
 Leu Leu Cys Arg Gly Ser Ile Glu Cys Arg Pro His Ala Arg Asn Tyr  
 900 905 910  
 Asn Ile Asn Cys Gly Ser Lys Phe Arg Phe  
 915 920  
 <210>16  
 <211>90  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>16  
 Ala Leu Pro Val Gly Glu Ile Ser Ser Ile Glu Ser Val Thr Asp Ile  
 1 5 10 15

Cys Leu Phe Ala Val Phe Ala Leu Ile Thr Ala Ala Val Glu Asp Glu  
 20 25 30  
 Leu Lys Leu Ser Ile Ser Ile Ala Arg Pro Val Met Ala Met Ser Ser  
 35 40 45  
 Leu Glu Ala Ile Ser Leu Val Pro Lys Ser Lys Thr Lys Cys Asp Pro  
 50 55 60  
 Gly Asp Cys Val Asn Phe Glu Thr Val Thr Ser Ala Pro Ser Leu Ile  
 65 70 75 80  
 Thr Lys Tyr Pro Ala Asp Arg Leu Thr Phe  
 85 90

&lt;210&gt;17

&lt;211&gt;1003

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;17

Lys Ser Phe Arg Tyr Asn Leu Ser Leu Ile Phe Ser Phe Leu Val Val  
 1 5 10 15  
 Ile Pro Leu Thr Asp Ser Thr Thr Ser Ser Leu Ser Thr Ser Leu Leu  
 20 25 30  
 Asp Glu Gly Asn Pro Gln Ser Met Arg Lys Leu Arg Ile Leu Ala Ile  
 35 40 45  
 Val Leu Ile Ala Leu Ser Ile Ile Leu Ile Ala Gly Gly Val Val Leu  
 50 55 60  
 Leu Thr Val Ala Ile Pro Gly Leu Ser Ser Val Ile Ser Ser Pro Ala  
 65 70 75 80  
 Gly Met Gly Ala Cys Ala Leu Gly Cys Val Met Leu Ala Leu Gly Ile  
 85 90 95  
 Asp Val Leu Leu Lys Lys Arg Glu Val Pro Ile Val Leu Ala Ser Val  
 100 105 110  
 Thr Thr Thr Pro Gly Thr Gly Ser Pro Arg Ser Gly Ile Ser Ile Ser  
 115 120 125  
 Gly Ala Asp Ser Thr Ile Arg Ser Leu Pro Thr Tyr Leu Leu Asp Glu  
 130 135 140  
 Gly His Pro Gln Ser Met Arg Lys Leu Arg Ile Leu Ala Ile Val Leu  
 145 150 155 160  
 Ile Val Phe Ser Ile Ile Leu Ile Ala Ser Gly Val Val Leu Leu Thr  
 165 170 175  
 Val Ala Ile Pro Gly Leu Ser Ser Val Ile Ser Ser Pro Ala Gly Met  
 180 185 190  
 Gly Ala Cys Ala Leu Gly Cys Val Met Leu Ala Leu Gly Ile Asp Val  
 195 200 205  
 Leu Leu Lys Lys Arg Glu Val Pro Ile Val Leu Ala Ser Val Thr Thr  
 210 215 220  
 Thr Pro Gly Thr Gly Ser Pro Arg Ser Gly Ile Ser Ile Ser Gly Ala  
 225 230 235 240  
 Asp Ser Thr Ile Arg Ser Leu Pro Thr Tyr Pro Leu Asp Glu Gly His  
 245 250 255  
 Pro Gln Ser Met Arg Lys Leu Arg Ile Leu Ala Ile Val Leu Ile Val  
 260 265 270  
 Phe Ser Ile Ile Leu Ile Ala Ser Gly Val Val Leu Leu Thr Val Ala  
 275 280 285  
 Ile Pro Gly Leu Ser Ser Ile Ile Ser Ser Pro Ala Glu Met Gly Ala  
 290 295 300  
 Cys Ala Leu Gly Cys Val Met Leu Ala Leu Gly Ile Asp Val Leu Leu  
 305 310 315 320  
 Lys Lys Arg Glu Val Pro Ile Val Val Pro Ala Pro Ile Pro Glu Glu  
 325 330 335  
 Val Val Ile Asp Asp Ile Asp Glu Glu Ser Ile Arg Leu Gln Gln Glu  
 340 345 350  
 Ala Glu Ala Ala Leu Ala Arg Leu Pro Glu Glu Met Ser Ala Phe Glu  
 355 360 365  
 Gly Tyr Ile Lys Val Val Glu Ser His Leu Glu Asn Met Lys Ser Leu  
 370 375 380  
 Pro Tyr Asp Gly His Gly Leu Glu Glu Lys Thr Lys His Gln Ile Arg

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     | 400 |
| Val | Val | Arg | Ser | Ser | Leu | Lys | Ala | Met | Val | Pro | Glu | Phe | Leu | Asp |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |
| Arg | Arg | Ile | Phe | Glu | Glu | Glu | Glu | Phe | Phe | Phe | Leu | Ser | Ala | Arg |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |
| Arg | Leu | Ile | Asp | Leu | Ala | Thr | Thr | Leu | Val | Glu | Arg | Lys | Ile | Leu |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |
| Glu | Gln | Leu | Glu | Arg | Asn | Asn | Leu | Arg | Lys | Ala | Phe | Ser | Tyr | Leu |
|     | 450 |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Gln | Asp | Ser | Ile | Phe | Lys | Lys | Ile | Ile | Asp | Asn | Phe | Glu | Lys | Leu |
| 465 |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Trp | Lys | Phe | Met | Ile | Leu | Ser | Lys | Ser | Ile | Cys | Arg | Phe | Thr | Ile |
|     |     |     | 485 |     |     |     |     |     | 490 |     |     |     |     | 495 |
| Phe | Glu | Asn | His | Glu | His | Gly | Val | Ala | Lys | Ser | Leu | Leu | His | Lys |
|     |     | 500 |     |     |     |     | 505 |     |     |     |     |     | 510 |     |
| Ala | Val | Leu | Leu | Glu | Lys | Val | Ile | Tyr | Arg | Ser | Leu | Gln | Lys | Ser |
|     | 515 |     |     |     |     | 520 |     |     |     |     |     | 525 |     |     |
| Arg | Asp | Ile | Gly | Met | Ser | Ser | Ala | Lys | Met | Lys | Ile | Leu | His | Gly |
|     | 530 |     |     | 535 |     |     |     |     |     |     | 540 |     |     |     |
| Pro | Phe | Phe | Ser | Leu | Glu | Asp | Asn | Lys | Lys | Thr | Ile | Met | Lys | Glu |
| 545 |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |
| Ala | Glu | Met | Leu | Glu | Ser | Leu | Ser | Ser | Tyr | Arg | Lys | Val | Phe | Leu |
|     |     | 565 |     |     |     |     |     | 570 |     |     |     |     |     | 575 |
| Leu | Ser | Asp | Glu | Asn | Val | Val | Asp | Thr | Pro | Ser | Asp | Pro | Lys | Lys |
|     |     | 580 |     |     |     |     | 585 |     |     |     |     | 590 |     |     |
| Asp | Leu | Ser | Gly | Ile | Pro | Cys | Arg | Asp | Ala | Leu | Ser | Glu | Ile | Ser |
|     | 595 |     |     |     |     | 600 |     |     |     |     |     | 605 |     |     |
| Asp | Glu | Gln | Trp | Gln | Lys | Lys | Ala | His | Leu | Lys | His | Gln | Glu | Ser |
|     | 610 |     |     | 615 |     |     |     |     |     |     | 620 |     |     |     |
| Tyr | Thr | Gln | Ala | Arg | Asp | Arg | Leu | Thr | Asp | Gln | Ser | Ser | Lys | Glu |
| 625 |     |     |     | 630 |     |     |     |     | 635 |     |     |     |     | 640 |
| Gln | Lys | Glu | Leu | Glu | Lys | Ala | Glu | Gln | Glu | Tyr | Ile | Ser | Ser | Trp |
|     |     | 645 |     |     |     |     |     | 650 |     |     |     |     |     | 655 |
| Arg | Val | Lys | Lys | Phe | Glu | Ile | Glu | Arg | Val | Gln | Glu | Arg | Ile | Gln |
|     |     | 660 |     |     |     |     | 665 |     |     |     |     |     | 670 |     |
| Ile | Gln | Lys | Leu | Tyr | Pro | Asn | Ile | Leu | Glu | Arg | Glu | Glu | Glu | Thr |
|     | 675 |     |     |     |     | 680 |     |     |     |     |     | 685 |     |     |
| Gly | Gln | Glu | Thr | Val | Thr | Pro | Thr | Val | Gln | Gly | Thr | Thr | Ala | Ser |
|     | 690 |     |     |     | 695 |     |     |     |     |     | 700 |     |     |     |
| Asp | Leu | Thr | Asp | Ile | Leu | Gly | Arg | Ile | Glu | Val | Ser | Ser | Arg | Glu |
| 705 |     |     |     | 710 |     |     |     |     | 715 |     |     |     |     | 720 |
| Asn | Gln | Asn | Gln | Glu | Ser | Cys | Val | Lys | Val | Leu | Arg | Ser | His | Glu |
|     |     | 725 |     |     |     |     | 730 |     |     |     |     |     |     | 735 |
| Glu | Met | Ser | Trp | Glu | Val | Lys | Gln | Glu | Tyr | Gly | Pro | Lys | Lys | Lys |
|     | 740 |     |     |     |     |     | 745 |     |     |     |     | 750 |     |     |
| Phe | Gln | Asp | Gln | Met | Gly | Ser | Leu | Glu | Arg | Phe | Phe | Thr | Glu | His |
|     | 755 |     |     |     | 760 |     |     |     |     |     |     | 765 |     |     |
| Glu | Glu | Leu | Glu | Val | Leu | Gln | Lys | Asp | Tyr | Ser | Lys | His | Leu | Ser |
|     | 770 |     |     |     | 775 |     |     |     | 780 |     |     |     |     |     |
| Phe | Lys | Lys | Val | Asn | Asn | Lys | Lys | Glu | Val | Gln | Tyr | Ala | Lys | Phe |
| 785 |     |     |     | 790 |     |     |     |     | 795 |     |     |     |     | 800 |
| Leu | Lys | Val | Leu | Glu | Ser | Asp | Leu | Glu | Gly | Ile | Leu | Ala | Gln | Thr |
|     |     | 805 |     |     |     |     |     | 810 |     |     |     |     |     | 815 |
| Ser | Ala | Glu | Ser | Leu | Leu | Thr | Gln | Glu | Glu | Leu | Pro | Ile | Leu | Ala |
|     |     | 820 |     |     |     |     | 825 |     |     |     |     | 830 |     |     |
| Arg | Gly | Ala | Leu | Glu | Lys | Ala | Val | Phe | Lys | Gly | Ser | Leu | Cys | Cys |
|     | 835 |     |     |     |     | 840 |     |     |     |     |     | 845 |     |     |
| Leu | Ala | Ser | Lys | Ala | Lys | Pro | Tyr | Phe | Glu | Glu | Asp | Pro | Arg | Phe |
|     | 850 |     |     |     | 855 |     |     |     |     |     | 860 |     |     |     |
| Asp | Ser | Asp | Thr | Gln | Leu | Arg | Ala | Leu | Thr | Leu | Arg | Leu | Gln | Glu |
| 865 |     |     |     | 870 |     |     |     |     | 875 |     |     |     |     | 880 |
| Lys | Ala | Ser | Leu | Glu | Glu | Glu | Ile | Lys | Arg | Phe | Ser | Asn | Leu | Glu |
|     |     | 885 |     |     |     |     |     | 890 |     |     |     |     | 895 |     |
| Asp | Ile | Ala | Glu | Glu | Arg | Arg | Leu | Leu | Lys | Glu | Ser | Lys | Gln | Thr |

900 905 910  
 Glu Arg Ala Gly Leu Gly Val Leu Arg Glu Ile Ala Val Glu Ser Thr  
 915 920 925  
 Tyr Asp Leu Arg Ser Leu Thr Asn Thr Trp Glu Gly Thr Pro Glu Ser  
 930 935 940  
 Glu Lys Val Tyr Phe Ser Met Tyr Leu Asn Tyr Tyr Asn Glu Glu Lys  
 945 950 955 960  
 Arg Arg Xaa Lys Thr Arg Leu Val Glu Met Thr Gln Arg Tyr Arg Asp  
 965 970 975  
 Phe Lys Met Ala Leu Glu Ala Met Gln Phe Asn Glu Glu Ala Leu Leu  
 980 985 990  
 Gln Glu Glu Leu Ser Ile Gln Ala Pro Ser Glu  
 995 1000

&lt;210&gt;18

&lt;211&gt;302

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;18

Cys Lys Tyr Ser Tyr Leu Leu Asn Tyr Pro Pro Pro Pro Arg Arg Ser  
 1 5 10 15  
 Leu Gly Val Ser Cys Ser Lys Leu Arg Ser Leu Ser Ile Thr Leu Leu  
 20 25 30  
 Val Leu Gly Val Leu Leu Leu Thr Leu Gly Ile Pro Gly Leu Thr Ala  
 35 40 45  
 Gly Ile Ser Phe Gly Ala Gly Leu Gly Phe Ser Ala Leu Gly Gly Val  
 50 55 60  
 Leu Val Ile Ser Gly Leu Leu Phe Leu Leu Val Arg Arg Glu Val Pro  
 65 70 75 80  
 Thr Val Arg Ser Glu Ile Pro Arg Gly Val Ser Val Thr Pro Ser  
 85 90 95  
 Glu Glu Pro Ala Leu Glu Lys Ala Gln Lys Glu Pro Glu Thr Lys Lys  
 100 105 110  
 Ile Leu Asp Arg Leu Pro Lys Glu Leu Asp Gln Leu Asp Thr Tyr Ile  
 115 120 125  
 Gln Glu Val Phe Ala Cys Leu Glu Arg Leu Lys Asp Pro Lys Tyr Glu  
 130 135 140  
 Asp Arg Gly Leu Leu Thr Glu Ala Lys Glu Lys Leu Arg Val Phe Asp  
 145 150 155 160  
 Val Val Glu Lys Asp Met Met Ser Glu Phe Leu Asp Ile Gln Arg Val  
 165 170 175  
 Leu Asn Glu Glu Ala Tyr Tyr Val Glu His Cys Gln Asp Pro Leu Glu  
 180 185 190  
 Asn Ile Ala Tyr Glu Ile Phe Ser Ser Gln Glu Leu Arg Asp Tyr Tyr  
 195 200 205  
 Cys Ala Gly Val Cys Gly Tyr Leu Pro Ser Gly Asp Ala Arg Ala Asp  
 210 215 220  
 Arg Leu Lys Arg Ser Val Lys Glu Val Met Asp Arg Phe Met Arg Val  
 225 230 235 240  
 Thr Trp Lys Ser Trp Glu Ala Ser Val Met Leu Asp His Ser Tyr Gly  
 245 250 255  
 Val Ala Arg Glu Leu Phe Lys Lys Ala Val Gly Val Leu Glu Glu Ser  
 260 265 270  
 Val Tyr Lys Ile Leu Phe Lys Ser Tyr Arg Asp Ala Phe Tyr Glu Cys  
 275 280 285  
 Glu Lys Ala Lys Ile Gln Arg Asp Gly Arg Phe Lys Trp Leu  
 290 295 300

&lt;210&gt;19

&lt;211&gt;477

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;19

Asp Thr Ser Ala His Ala Glu Gln Arg Phe Arg Asp Ile Asn Gly Cys  
 1 5 10 15  
 Trp Glu Asp Leu Lys Gln Thr Ile Phe Trp Val Gly Glu His Asp Cys



335

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Ser | Ile | Ser | Ser | Pro | Ser | Lys | Leu | Arg | Val | Leu | Ala | Ile | Thr | Phe |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Leu | Val | Phe | Gly | Met | Leu | Leu | Leu | Ile | Ser | Gly | Ala | Leu | Phe | Leu | Thr |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Leu | Gly | Ile | Pro | Gly | Leu | Ser | Ala | Ala | Ile | Ser | Phe | Gly | Leu | Gly | Ile |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Gly | Leu | Ser | Ala | Leu | Gly | Gly | Val | Leu | Met | Ile | Ser | Gly | Leu | Leu | Cys |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Leu | Leu | Val | Lys | Arg | Glu | Ile | Pro | Thr | Val | Arg | Pro | Glu | Glu | Ile | Pro |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Glu | Gly | Val | Ser | Leu | Ala | Pro | Ser | Glu | Glu | Pro | Ala | Leu | Gln | Ala | Ala |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Gln | Lys | Thr | Leu | Ala | Gln | Leu | Pro | Lys | Glu | Leu | Asp | Gln | Leu | Asp | Thr |
|     | 115 |     |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Asp | Ile | Gln | Glu | Val | Phe | Ala | Cys | Leu | Arg | Lys | Leu | Lys | Asp | Ser | Lys |
| 130 |     |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Tyr | Glu | Ser | Arg | Ser | Phe | Leu | Asn | Asp | Ala | Lys | Lys | Glu | Leu | Arg | Val |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Phe | Asp | Phe | Val | Val | Glu | Asp | Thr | Leu | Ser | Glu | Ile | Phe | Glu | Leu | Arg |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Gln | Ile | Val | Ala | Gln | Glu | Gly | Trp | Asp | Leu | Asn | Phe | Leu | Ile | Asn | Gly |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Gly | Arg | Ser | Leu | Met | Met | Thr | Ala | Glu | Ser | Glu | Ser | Leu | Asp | Leu | Phe |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| His | Val | Ser | Lys | Arg | Leu | Gly | Tyr | Leu | Pro | Ser | Gly | Asp | Val | Arg | Gly |
| 210 |     |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Glu | Gly | Leu | Lys | Lys | Ser | Ala | Lys | Glu | Ile | Val | Ala | Arg | Leu | Met | Ser |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Leu | His | Cys | Glu | Ile | His | Lys | Val | Ala | Val | Ala | Phe | Asp | Arg | Asn | Ser |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     |     | 255 |     |
| Tyr | Ala | Met | Ala | Glu | Lys | Ala | Phe | Ala | Lys | Ala | Leu | Gly | Ala | Leu | Glu |
|     |     | 260 |     |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Glu | Ser | Val | Tyr | Arg | Ser | Leu | Thr | Gln | Ser | Tyr | Arg | Asp | Lys | Phe | Leu |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Glu | Ser | Glu | Arg | Ala | Lys | Ile | Pro | Trp | Asn | Gly | His | Ile | Thr | Trp | Leu |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Arg | Asp | Asp | Ala | Lys | Ser | Gly | Cys | Ala | Glu | Lys | Lys | Leu | Arg | Asp | Ala |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Glu | Glu | Arg | Trp | Lys | Lys | Phe | Arg | Lys | Ala | Val | Phe | Trp | Val | Glu | Glu |
|     |     |     | 325 |     |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Asp | Gly | Gly | Phe | Asp | Ile | Asn | Asn | Leu | Leu | Gly | Asp | Trp | Gly | Thr | Val |
|     | 340 |     |     |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Leu | Asp | Pro | Tyr | Arg | Gln | Glu | Arg | Met | Asp | Glu | Ile | Thr | Phe | His | Glu |
|     | 355 |     |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Leu | Tyr | Glu | Lys | Thr | Thr | Phe | Leu | Lys | Arg | Leu | His | Arg | Lys | Cys | Ala |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Leu | Ala | Lys | Thr | Thr | Phe | Glu | Lys | Lys | Arg | Ser | Lys | Lys | Asn | Leu | Gln |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Ala | Val | Glu | Glu | Ala | Asn | Ala | Arg | Arg | Leu | Lys | Tyr | Val | Arg | Asp | Trp |
|     |     |     | 405 |     |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Tyr | Asp | Gln | Glu | Phe | Gln | Lys | Ala | Gly | Glu | Arg | Leu | Glu | Lys | Leu | His |
|     |     | 420 |     |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Ala | Leu | Tyr | Pro | Glu | Val | Ser | Val | Ser | Ile | Arg | Glu | Asn | Lys | Ile | Gln |
|     | 435 |     |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Glu | Thr | Arg | Ser | Asn | Leu | Glu | Lys | Ala | Tyr | Glu | Ala | Ile | Glu | Glu | Asn |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Tyr | Arg | Cys | Cys | Val | Arg | Glu | Gln | Glu | Asp | Tyr | Trp | Lys | Glu | Glu | Glu |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Lys | Arg | Glu | Ala | Glu | Phe | Arg | Glu | Arg | Gly | Asn | Lys | Ile | Leu | Ser | Pro |
|     |     |     | 485 |     |     |     |     |     | 490 |     |     |     |     | 495 |     |
| Glu | Glu | Leu | Glu | Ser | Ser | Leu | Glu | Gln | Phe | Asp | His | Gly | Leu | Lys | Asn |
|     |     | 500 |     |     |     |     |     | 505 |     |     |     | 510 |     |     |     |
| Phe | Ser | Glu | Lys | Leu | Met | Glu | Leu | Glu | Gly | His | Ile | Leu | Lys | Leu | Gln |
|     | 515 |     |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |

Lys Glu Ala Thr Ala Glu Val Glu Asn Lys Ile Leu Ser Asp Ala Glu  
 530 535 540  
 Ser Arg Leu Glu Ile Val Phe Glu Asp Val Lys Glu Met Pro Cys Arg  
 545 550 555 560  
 Ile Glu Glu Ile Glu Lys Thr Leu Arg Met Ala Glu Leu Pro Leu Leu  
 565 570 575  
 Pro Thr Lys Lys Ala Phe Glu Lys Ala Cys Ser Gln Tyr Asn Ser Cys  
 580 585 590  
 Ala Glu Met Leu Glu Lys Val Lys Pro Tyr Cys Lys Glu Ser Leu Ala  
 595 600 605  
 Tyr Val Thr Ser Lys Glu Arg Leu Val Ser Leu Asp Glu Asp Leu Arg  
 610 615 620  
 Arg Ala Tyr Thr Glu Cys Gln Lys Arg Phe Gln Gly Asp Ser Gly Leu  
 625 630 635 640  
 Glu Ser Glu Val Arg Ala Cys Arg Glu Gln Leu Arg Glu Arg Ile Gln  
 645 650 655  
 Glu Phe Glu Thr Gln Gly Leu Asp Leu Val Glu Lys Glu Leu Leu Cys  
 660 665 670  
 Val Ser Ser Arg Leu Arg Asn Thr Glu Cys Asp Cys Val Ser Gly Val  
 675 680 685  
 Lys Lys Glu Ala Pro Pro Gly Lys Lys Phe Tyr Ala Gln Tyr Tyr Asp  
 690 695 700  
 Glu Ile Tyr Arg Val Arg Val Gln Ser Arg Trp Met Thr Met Ser Glu  
 705 710 715 720  
 Arg Leu Arg Glu Gly Val Gln Ala Cys Asn Lys Met Leu Lys Ala Gly  
 725 730 735  
 Leu Ser Glu Glu Asp Lys Val Leu Lys Glu Glu Glu Tyr Trp Leu Tyr  
 740 745 750  
 Arg Glu Glu Arg Lys Asn Lys Glu Lys Arg Leu Val Gly Thr Lys Ile  
 755 760 765  
 Val Ala Thr Gln Gln Arg Val Ala Ala Phe Glu Ser Ile Glu Val Pro  
 770 775 780  
 Glu Ile Pro Glu Ala Pro Glu Glu Lys Pro Ser Leu Leu Asp Lys Ala  
 785 790 795 800  
 Arg Ser Leu Phe Thr Arg Glu Asp His Ser  
 805 810

&lt;210&gt;21

&lt;211&gt;83

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;21

Glu Trp Ser Ser Arg Val Asn Lys Glu Arg Ala Leu Ser Ser Lys Leu  
 1 5 10 15  
 Gly Phe Ser Ser Gly Ala Ser Gly Ile Ser Gly Thr Ser Met Asp Ser  
 20 25 30  
 Asn Ala Ala Thr Arg Cys Cys Val Ala Thr Ile Leu Val Pro Thr Lys  
 35 40 45  
 Arg Phe Ser Leu Phe Phe Leu Ser Ser Arg Tyr Asn Gln Tyr Ser Ser  
 50 55 60  
 Ser Leu Arg Thr Leu Ser Ser Ser Leu Arg Pro Ala Phe Asn Ile Leu  
 65 70 75 80  
 Leu His Ala

&lt;210&gt;22

&lt;211&gt;246

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;22

Phe Trp Tyr Ser Ile Met Thr Ala Ala Pro Ala Ile Leu His Val Ser  
 1 5 10 15  
 Pro Thr Pro Pro Glu Glu Thr Lys Phe Val Ile Pro Lys Asp Ser Lys  
 20 25 30  
 Ser Arg Ala Leu Gly Ile Thr Leu Leu Val Val Gly Ile Leu Leu Val  
 35 40 45

Val Cys Gly Ala Ile Val Leu Ser Gly Val Ile Ser Gly Leu Ser Ala  
 50 55 60  
 Leu Ile Val Cys Gly Leu Gly Ile Ser Thr Ile Ser Leu Gly Val Val  
 65 70 75 80  
 Leu Phe Val Leu Gly Leu Ile Leu Leu Leu Arg Lys Arg Glu Leu Thr  
 85 90 95  
 Leu Glu Gln Ile Glu Ala Lys Gln Ile Ala Glu Thr Phe Ala Asp Glu  
 100 105 110  
 Leu Lys Glu Leu Glu Met Tyr Ile Gln Ser Thr Glu Lys Ser Leu Glu  
 115 120 125  
 Lys Ile Glu Gly Ser Arg Tyr Ser Asp Gln Gly Phe Leu Asn Arg Ala  
 130 135 140  
 Thr Gln Lys Ile Leu Asp Leu Glu Ser Ser Leu Ser Ser Ile Thr Ser  
 145 150 155 160  
 Glu Phe Arg Asp Leu Arg Gln Leu Phe Asp Glu Glu Lys Ile Glu Leu  
 165 170 175  
 Leu Ser Gly Glu Arg Leu Leu Glu Phe Ile Ala Ala Asn Leu Phe Lys  
 180 185 190  
 Gln Gly Arg Asp Val Tyr Leu Asn Leu Gly Asn Leu Ala Asp Ile Arg  
 195 200 205  
 Ala Tyr Met Gly Pro Asn Asn Tyr Lys Val Ala Met Val Ile Glu Lys  
 210 215 220  
 Ala Lys Ala Val Val His Glu Phe Ile Val Leu Thr Thr Met Ala Arg  
 225 230 235 240  
 Glu Leu Glu Phe Phe Phe  
 245

&lt;210&gt;23

&lt;211&gt;265

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;23

Gly Ile Arg Val Phe Phe Leu Lys Asn Lys Tyr Gly Leu Leu Lys Gly  
 1 5 10 15  
 Met Tyr Gln Glu Asn Leu Arg Leu Leu Glu Arg Leu Leu Tyr Asn Ser  
 20 25 30  
 Val Gln Lys Ser Tyr Ala Asp Arg Leu Phe Ser Tyr Glu Lys Thr Lys  
 35 40 45  
 Met Val His Asp Thr Pro Leu Ile Pro Trp Glu Glu Asp Lys Glu Lys  
 50 55 60  
 Cys Ala Glu Ala Glu Lys Ala Phe Leu Glu Gln Gln Lys Ile Leu Leu  
 65 70 75 80  
 Asp Tyr Gly Lys Ser Ile Phe Trp Leu Asn Glu Asn Asp Glu Ile Asn  
 85 90 95  
 Leu Asn Asp Pro Trp Ser Trp Gly Leu Asn Thr Val Arg Thr Arg Lys  
 100 105 110  
 Val Phe Gln Glu Val Asp Asp Ser Glu Arg Trp Asn His Lys Val Leu  
 115 120 125  
 Ile Gln Lys Leu Glu Asp Asp Tyr Glu Lys Leu Leu Glu Glu Ser Ser  
 130 135 140  
 Lys Glu Ser Thr Glu Ala Asn Lys Lys Leu Leu Ser Asp Leu Val Asp  
 145 150 155 160  
 Arg Leu Glu Asp Ala Lys Thr Lys Phe Phe Leu Lys Lys Gln Glu Glu  
 165 170 175  
 Val Glu Thr Arg Val Lys Asp Leu Arg Ala Arg Tyr Gly Gly Thr Val  
 180 185 190  
 Asp Pro Lys Gln Asp Thr Glu Ala Lys Lys Lys Val Glu Leu Glu Ala  
 195 200 205  
 Ser Leu Glu Thr Phe Leu Asp Ser Ile Glu Ser Glu Leu Val Gln Cys  
 210 215 220  
 Leu Glu Asp Gln Asp Ile Tyr Trp Lys Glu Gln Asp Val Lys Asp Leu  
 225 230 235 240  
 Ala Arg Thr Gln Glu Leu Glu Glu Gln Asp Ile Glu Ala Lys Arg Glu  
 245 250 255  
 Glu Ala Ala Glu Asp Leu Arg Lys Ser

260

265

&lt;210&gt;24

&lt;211&gt;277

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;24

Glu Ser Leu Asn Glu Arg Leu Lys Lys Ser Lys Thr Met Leu Asp Arg  
 1 5 10 15  
 Ala Lys Trp His Ile Glu Asn Ala Glu Asp Ser Ile Thr Trp Trp Thr  
 20 25 30  
 Ser Gln Ile Glu Met Lys Asp Met Lys Ala Arg Leu Lys Ile Leu Lys  
 35 40 45  
 Glu Asp Ile Thr Ser Val Leu Pro Glu Ile Asp Glu Ile Glu Thr Cys  
 50 55 60  
 Leu Ser Leu Glu Glu Leu Pro Leu Leu Thr Thr Arg Glu Leu Leu Thr  
 65 70 75 80  
 Lys Ser Tyr Leu Lys Phe Lys Ile Cys Ser Glu Thr Leu Leu Lys Met  
 85 90 95  
 Thr Ser Val Phe Glu Asn Asn Ile Tyr Val Gln Glu Tyr Glu Val Gln  
 100 105 110  
 Leu Gln Asn Leu Gly Phe Lys Leu Gln Gly Ile Ser Gln Arg Phe Gly  
 115 120 125  
 Lys Lys Gln Asp Asp Phe Ala Asn Leu Glu Glu Gln Val Ala Leu Gln  
 130 135 140  
 Lys Lys Arg Leu Arg Glu Leu Thr Gln Asn Phe Glu Ile Gln Gly Phe  
 145 150 155 160  
 Asn Phe Met Lys Glu Asp Phe Lys Ala Ala Ala Lys Asp Leu Tyr Ile  
 165 170 175  
 Arg Ser Thr Ala Glu Gln Lys Met Asn Phe Asp Val Pro Cys Met Glu  
 180 185 190  
 Leu Phe Arg Arg Tyr His Glu Glu Val Asn Lys Pro Leu Leu Glu Leu  
 195 200 205  
 Met Tyr Asn Cys Ala Asp Ser Tyr Arg Asp Ala Lys Lys Lys Leu Cys  
 210 215 220  
 Ser Leu Arg Leu Asp Glu Lys Glu Leu Leu Gln Lys Glu Ile Lys Lys  
 225 230 235 240  
 Glu Glu Phe Tyr Gln Lys Lys Gln Gln Arg His Ala Asp Arg Ser Arg  
 245 250 255  
 His Thr Arg Tyr Gln Lys Leu Arg Ile Ala Glu Glu Leu Ala Leu Glu  
 260 265 270  
 Leu Lys Lys Lys Ile  
 275

&lt;210&gt;25

&lt;211&gt;202

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;25

Leu Leu Ser Leu Ser Asn Leu Leu Tyr Trp Lys Glu Ser Pro Leu Arg  
 1 5 10 15  
 Glu Lys Lys Val Val Met Lys Ile Pro Leu Arg Phe Leu Leu Ile Ser  
 20 25 30  
 Leu Val Pro Thr Leu Ser Met Ser Asn Leu Leu Gly Ala Ala Thr Thr  
 35 40 45  
 Glu Glu Leu Ser Ala Ser Asn Ser Phe Asp Gly Thr Ser Thr Thr  
 50 55 60  
 Ser Phe Ser Ser Lys Thr Ser Ser Ala Thr Asp Gly Thr Asn Tyr Val  
 65 70 75 80  
 Phe Lys Asp Ser Val Val Ile Glu Asn Val Pro Lys Thr Gly Glu Thr  
 85 90 95  
 Gln Ser Thr Ser Cys Phe Lys Asn Asp Ala Ala Ala Gly Asp Leu Asn  
 100 105 110  
 Phe Leu Gly Gly Gly Phe Ser Phe Thr Phe Ser Asn Ile Asp Ala Thr  
 115 120 125  
 Thr Ala Ser Gly Ala Ala Ile Gly Ser Glu Ala Ala Asn Lys Thr Val

130 135 140  
 Thr Leu Ser Gly Phe Ser Ala Leu Ser Phe Leu Lys Ser Pro Ala Ser  
 145 150 155 160  
 Thr Val Thr Asn Gly Leu Gly Ala Ile Asn Val Lys Gly Asn Leu Ser  
 165 170 175  
 Leu Leu Asp Asn Asp Lys Val Leu Ile Gln Asp Asn Phe Ser Thr Gly  
 180 185 190  
 Asp Gly Gly Gln Leu Ile Val Gln Ala Pro  
 195 200

&lt;210&gt;26

&lt;211&gt;199

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;26

Gly Ile Asp Ser Gly Gln Phe Leu Asn Arg Arg Trp Arg Thr Ile Asn  
 1 5 10 15  
 Cys Ala Gly Ser Leu Lys Ile Ala Asn Asn Lys Ser Leu Ser Phe Ile  
 20 25 30  
 Gly Asn Ser Ser Ser Thr Arg Gly Gly Ala Ile His Thr Lys Asn Leu  
 35 40 45  
 Thr Leu Ser Ser Gly Gly Glu Thr Leu Phe Gln Gly Asn Thr Ala Pro  
 50 55 60  
 Thr Ala Ala Gly Lys Gly Gly Ala Ile Ala Ile Ala Asp Ser Gly Thr  
 65 70 75 80  
 Leu Ser Ile Ser Gly Asp Ser Gly Asp Ile Ile Phe Glu Gly Asn Thr  
 85 90 95  
 Ile Gly Ala Thr Gly Thr Val Ser His Ser Ala Ile Asp Leu Gly Thr  
 100 105 110  
 Ser Ala Lys Ile Thr Ala Leu Arg Ala Ala Gln Gly His Thr Ile Tyr  
 115 120 125  
 Phe Tyr Asp Pro Ile Thr Val Thr Gly Ser Thr Ser Val Ala Asp Ala  
 130 135 140  
 Leu Asn Ile Asn Ser Pro Asp Thr Gly Asp Asn Lys Glu Tyr Thr Gly  
 145 150 155 160  
 Thr Ile Val Phe Ser Gly Glu Lys Leu Thr Glu Ala Glu Ala Lys Asp  
 165 170 175  
 Glu Lys Asn Arg Thr Ser Lys Leu Leu Gln Asn Val Ala Phe Lys Asn  
 180 185 190  
 Gly Thr Val Val Leu Lys Arg  
 195

&lt;210&gt;27

&lt;211&gt;483

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;27

Lys Gly Asp Val Val Leu Ser Ala Asn Gly Phe Ser Gln Asp Ala Asn  
 1 5 10 15  
 Ser Lys Leu Ile Met Asp Leu Gly Thr Ser Leu Val Ala Asn Thr Glu  
 20 25 30  
 Ser Ile Glu Leu Thr Asn Leu Glu Ile Asn Ile Asp Ser Leu Arg Asn  
 35 40 45  
 Gly Lys Lys Ile Lys Leu Ser Ala Ala Thr Ala Gln Lys Asp Ile Arg  
 50 55 60  
 Ile Asp Arg Pro Val Val Leu Ala Ile Ser Asp Glu Ser Phe Tyr Gln  
 65 70 75 80  
 Asn Gly Phe Leu Asn Glu Asp His Ser Tyr Asp Gly Ile Leu Glu Leu  
 85 90 95  
 Asp Ala Gly Lys Asp Ile Val Ile Ser Ala Asp Ser Arg Ser Ile Asp  
 100 105 110  
 Ala Val Gln Ser Pro Tyr Gly Tyr Gln Gly Lys Trp Thr Ile Asn Trp  
 115 120 125  
 Ser Thr Asp Asp Lys Lys Ala Thr Val Ser Trp Ala Lys Gln Ser Phe  
 130 135 140  
 Asn Pro Thr Ala Glu Gln Glu Ala Pro Leu Val Pro Asn Leu Leu Trp

145                      150                      155                      160  
 Gly Ser Phe Ile Asp Val Arg Ser Phe Gln Asn Phe Ile Glu Leu Gly  
                                  165                      170                      175  
 Thr Glu Gly Ala Pro Tyr Glu Lys Arg Phe Trp Val Ala Gly Ile Ser  
                                  180                      185                      190  
 Asn Val Leu His Arg Ser Gly Arg Glu Asn Gln Arg Lys Phe Arg His  
                                  195                      200                      205  
 Val Ser Gly Gly Ala Val Val Gly Ala Ser Thr Arg Met Pro Gly Gly  
                                  210                      215                      220  
 Asp Thr Leu Ser Leu Gly Phe Ala Gln Leu Phe Ala Arg Asp Lys Asp  
 225                                   230                      235                      240  
 Tyr Phe Met Asn Thr Asn Phe Ala Lys Thr Tyr Ala Gly Ser Leu Arg  
                                  245                      250                      255  
 Leu Gln His Asp Ala Ser Leu Tyr Ser Val Val Ser Ile Leu Leu Gly  
                                  260                      265                      270  
 Glu Gly Gly Leu Arg Glu Ile Leu Leu Pro Tyr Val Ser Lys Thr Leu  
                                  275                      280                      285  
 Pro Cys Ser Phe Tyr Gly Gln Leu Ser Tyr Gly His Thr Asp His Arg  
                                  290                      295                      300  
 Met Lys Thr Glu Ser Leu Pro Pro Pro Pro Pro Thr Leu Ser Thr Asp  
 305                                   310                      315                      320  
 His Thr Ser Trp Gly Gly Tyr Val Trp Ala Gly Glu Leu Gly Thr Arg  
                                  325                      330                      335  
 Val Ala Val Glu Asn Thr Ser Gly Arg Gly Phe Phe Gln Glu Tyr Thr  
                                  340                      345                      350  
 Pro Phe Val Lys Val Gln Ala Val Tyr Ala Arg Gln Asp Ser Phe Val  
                                  355                      360                      365  
 Glu Leu Gly Ala Ile Ser Arg Asp Phe Ser Asp Ser His Leu Tyr Asn  
                                  370                      375                      380  
 Leu Ala Ile Pro Leu Gly Ile Lys Leu Glu Lys Arg Phe Ala Glu Gln  
 385                                   390                      395                      400  
 Tyr Tyr His Val Val Ala Met Tyr Ser Pro Asp Val Cys Arg Ser Asn  
                                  405                      410                      415  
 Pro Lys Cys Thr Thr Thr Leu Leu Ser Asn Gln Gly Ser Trp Lys Thr  
                                  420                      425                      430  
 Lys Gly Ser Asn Leu Ala Arg Gln Ala Gly Ile Val Gln Ala Ser Gly  
                                  435                      440                      445  
 Phe Arg Ser Leu Gly Ala Ala Ala Glu Leu Phe Gly Asn Phe Gly Phe  
                                  450                      455                      460  
 Glu Trp Arg Gly Ser Ser Arg Ser Tyr Asn Val Asp Ala Gly Ser Lys  
 465                                   470                      475                      480  
 Ile Lys Phe

&lt;210&gt;28

&lt;211&gt;177

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;28

Met Lys Ser Ser Phe Pro Lys Phe Val Phe Ser Thr Phe Ala Ile Phe  
   1                                  5                                  10                                  15  
 Pro Leu Ser Met Ile Ala Thr Glu Thr Val Leu Asp Ser Ser Ala Ser  
                                   20                                  25                                  30  
 Phe Asp Gly Asn Lys Asn Gly Asn Phe Ser Val Arg Glu Ser Gln Glu  
                                   35                                  40                                  45  
 Asp Ala Gly Thr Thr Tyr Leu Phe Lys Gly Asn Val Thr Leu Glu Asn  
                                   50                                  55                                  60  
 Ile Pro Gly Thr Gly Thr Ala Ile Thr Lys Ser Cys Phe Asn Asn Thr  
                                   65                                  70                                  75                                  80  
 Lys Gly Asp Leu Thr Phe Thr Gly Asn Gly Asn Ser Leu Leu Phe Gln  
                                   85                                  90                                  95  
 Thr Val Asp Ala Gly Thr Val Ala Gly Ala Ala Val Asn Ser Ser Val  
                                   100                                  105                                  110  
 Val Asp Lys Ser Thr Thr Phe Ile Gly Phe Ser Ser Leu Ser Phe Ile  
                                   115                                  120                                  125

Ala Ser Pro Gly Ser Ser Ile Thr Thr Gly Lys Gly Ala Val Ser Cys  
 130 135 140  
 Ser Thr Gly Ser Leu Ser Leu Thr Lys Met Ser Val Cys Ser Ser Ala  
 145 150 155 160  
 Lys Thr Phe Gln Arg Ile Met Ala Val Leu Ser Pro Gln Lys Leu Phe  
 165 170 175

His

&lt;210&gt;29

&lt;211&gt;597

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;29

Leu Glu Phe Asp Lys Asn Val Ser Leu Leu Phe Ser Lys Asn Phe Ser  
 1 5 10 15  
 Thr Asp Asn Gly Gly Ala Ile Thr Ala Lys Thr Leu Ser Leu Thr Gly  
 20 25 30  
 Thr Thr Met Ser Ala Leu Phe Ser Glu Asn Thr Ser Ser Lys Lys Gly  
 35 40 45  
 Gly Ala Ile Gln Thr Ser Asp Ala Leu Thr Ile Thr Gly Asn Gln Gly  
 50 55 60  
 Glu Val Ser Phe Ser Asp Asn Thr Ser Ser Asp Ser Gly Ala Ala Ile  
 65 70 75 80  
 Phe Thr Glu Ala Ser Val Thr Ile Ser Asn Asn Ala Lys Val Ser Phe  
 85 90 95  
 Ile Asp Asn Lys Val Thr Gly Ala Ser Ser Ser Thr Thr Gly Asp Met  
 100 105 110  
 Ser Gly Gly Ala Ile Cys Ala Tyr Lys Thr Ser Thr Asp Thr Lys Val  
 115 120 125  
 Thr Leu Thr Gly Asn Gln Met Leu Leu Phe Ser Asn Asn Thr Ser Thr  
 130 135 140  
 Thr Ala Gly Gly Ala Ile Tyr Val Lys Lys Leu Glu Leu Ala Ser Gly  
 145 150 155 160  
 Gly Leu Thr Leu Phe Ser Arg Asn Ser Val Asn Gly Gly Thr Ala Pro  
 165 170 175  
 Lys Gly Gly Ala Ile Ala Ile Glu Asp Ser Gly Glu Leu Ser Leu Ser  
 180 185 190  
 Ala Asp Ser Gly Asp Ile Val Phe Leu Gly Asn Thr Val Thr Ser Thr  
 195 200 205  
 Thr Pro Gly Thr Asn Arg Ser Ser Ile Asp Leu Gly Thr Ser Ala Lys  
 210 215 220  
 Met Thr Ala Leu Arg Ser Ala Ala Gly Arg Ala Ile Tyr Phe Tyr Asp  
 225 230 235 240  
 Pro Ile Thr Thr Gly Ser Ser Thr Thr Val Thr Asp Val Leu Lys Val  
 245 250 255  
 Asn Glu Thr Pro Ala Asp Ser Ala Leu Gln Tyr Thr Gly Asn Ile Ile  
 260 265 270  
 Phe Thr Gly Glu Lys Leu Ser Glu Thr Glu Ala Ala Asp Ser Lys Asn  
 275 280 285  
 Leu Thr Ser Lys Leu Leu Gln Pro Val Thr Leu Ser Gly Gly Thr Leu  
 290 295 300  
 Ser Leu Lys His Gly Val Thr Leu Gln Thr Gln Ala Phe Thr Gln Gln  
 305 310 315 320  
 Ala Asp Ser Arg Leu Glu Met Asp Val Gly Thr Thr Leu Glu Pro Ala  
 325 330 335  
 Asp Thr Ser Thr Ile Asn Asn Leu Val Ile Asn Ile Ser Ser Ile Asp  
 340 345 350  
 Gly Ala Lys Lys Ala Lys Ile Glu Thr Lys Ala Thr Ser Lys Asn Leu  
 355 360 365  
 Thr Leu Ser Gly Thr Ile Thr Leu Leu Asp Pro Thr Gly Thr Phe Tyr  
 370 375 380  
 Glu Asn His Ser Leu Arg Asn Pro Gln Ser Tyr Asp Ile Leu Glu Leu  
 385 390 395 400  
 Lys Ala Ser Gly Thr Val Thr Ser Thr Ala Val Thr Pro Asp Pro Ile



405 410 415  
 Met Gly Glu Lys Phe His Tyr Gly Tyr Gln Gly Thr Trp Gly Pro Ile  
 420 425 430  
 Val Trp Gly Thr Gly Ala Ser Thr Thr Ala Thr Phe Asn Trp Thr Lys  
 435 440 445  
 Thr Gly Tyr Ile Pro Asn Pro Glu Arg Ile Gly Ser Leu Val Pro Asn  
 450 455 460  
 Ser Leu Trp Asn Ala Phe Ile Asp Ile Ser Ser Leu His Tyr Leu Met  
 465 470 475 480  
 Glu Thr Ala Asn Glu Gly Leu Gln Gly Asp Arg Ala Phe Trp Cys Ala  
 485 490 495  
 Gly Leu Ser Asn Phe Phe His Lys Asp Ser Thr Lys Thr Arg Arg Gly  
 500 505 510  
 Phe Arg His Leu Ser Gly Gly Tyr Val Ile Gly Gly Asn Leu His Thr  
 515 520 525  
 Cys Ser Asp Lys Ile Leu Ser Ala Ala Phe Cys Gln Leu Phe Gly Arg  
 530 535 540  
 Asp Arg Asp Tyr Phe Val Ala Lys Asn Gln Arg Tyr Ser Leu Arg Arg  
 545 550 555 560  
 Asn Ser Leu Leu Pro Ala Gln Arg Asn Leu Tyr Leu Ser Ser Leu Gln  
 565 570 575  
 Thr Thr Ala Leu Phe Val Val Leu Cys Ser Tyr Arg Asp Ser Cys Ser  
 580 585 590  
 Leu Phe Arg Lys Pro  
 595

&lt;210&gt;30

&lt;211&gt;230

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;30

Leu Arg Ile Lys Gly Thr Val Tyr Gly Gly Thr Leu Tyr Tyr Gln His  
 1 5 10 15  
 Asn Glu Thr Tyr Ile Ser Leu Pro Cys Lys Leu Arg Pro Cys Ser Leu  
 20 25 30  
 Ser Tyr Val Pro Thr Glu Ile Pro Val Leu Phe Ser Gly Asn Leu Ser  
 35 40 45  
 Tyr Thr His Thr Asp Asn Asp Leu Lys Thr Lys Tyr Thr Tyr Pro  
 50 55 60  
 Thr Val Lys Gly Ser Trp Gly Asn Asp Ser Phe Ala Leu Glu Phe Gly  
 65 70 75 80  
 Gly Arg Ala Pro Ile Cys Leu Asp Glu Ser Ala Leu Phe Glu Gln Tyr  
 85 90 95  
 Met Pro Phe Met Lys Leu Gln Phe Val Tyr Ala His Gln Glu Gly Phe  
 100 105 110  
 Lys Glu Gln Gly Thr Glu Ala Arg Glu Phe Gly Ser Ser Arg Leu Val  
 115 120 125  
 Asn Leu Ala Leu Pro Ile Gly Ile Arg Phe Asp Lys Glu Ser Asp Cys  
 130 135 140  
 Gln Asp Ala Thr Tyr Asn Leu Thr Leu Gly Tyr Thr Val Asp Leu Val  
 145 150 155 160  
 Arg Ser Asn Pro Asp Cys Thr Thr Thr Leu Arg Ile Ser Gly Asp Ser  
 165 170 175  
 Trp Lys Thr Phe Gly Thr Asn Leu Ala Arg Gln Ala Leu Val Leu Arg  
 180 185 190  
 Ala Gly Asn His Phe Cys Phe Asn Ser Asn Phe Glu Ala Phe Ser Gln  
 195 200 205  
 Phe Ser Phe Glu Leu Arg Gly Ser Ser Arg Asn Tyr Asn Val Asp Leu  
 210 215 220  
 Gly Ala Lys Tyr Gln Phe  
 225 230

&lt;210&gt;31

&lt;211&gt;427

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;31

Met Arg Ser Ser Phe Ser Leu Leu Leu Ile Ser Ser Ser Leu Ala Phe  
 1 5 10 15  
 Pro Leu Leu Met Ser Val Ser Ala Asp Ala Ala Asp Leu Thr Leu Gly  
 20 25 30  
 Ser Arg Asp Ser Tyr Asn Gly Asp Thr Ser Thr Thr Glu Phe Thr Pro  
 35 40 45  
 Lys Ala Ala Thr Ser Asp Ala Ser Gly Thr Thr Tyr Ile Leu Asp Gly  
 50 55 60  
 Asp Val Ser Ile Ser Gln Ala Gly Lys Gln Thr Ser Leu Thr Thr Ser  
 65 70 75 80  
 Cys Phe Ser Asn Thr Ala Gly Asn Leu Thr Phe Leu Gly Asn Gly Phe  
 85 90 95  
 Ser Leu His Phe Asp Asn Ile Ile Ser Ser Thr Val Ala Gly Val Val  
 100 105 110  
 Val Ser Asn Thr Ala Ala Ser Gly Ile Thr Lys Phe Ser Gly Phe Ser  
 115 120 125  
 Thr Leu Arg Met Leu Ala Ala Pro Arg Thr Thr Gly Lys Gly Ala Ile  
 130 135 140  
 Lys Ile Thr Asp Gly Leu Val Phe Glu Ser Ile Gly Asn Leu Asp Leu  
 145 150 155 160  
 Asn Glu Asn Ala Ser Ser Glu Asn Gly Gly Ala Ile Asn Thr Lys Thr  
 165 170 175  
 Leu Ser Leu Thr Gly Ser Thr Arg Phe Val Ala Phe Leu Gly Asn Ser  
 180 185 190  
 Ser Ser Gln Gly Gly Ala Ile Tyr Ala Ser Gly Asp Ser Val Ile  
 195 200 205  
 Ser Glu Asn Ala Gly Ile Leu Ser Phe Gly Asn Asn Ser Ala Thr Thr  
 210 215 220  
 Ser Gly Gly Ala Ile Ser Ala Glu Gly Asn Leu Val Ile Ser Asn Asn  
 225 230 235 240  
 Gln Asn Ile Phe Phe Asp Gly Cys Lys Ala Thr Thr Asn Gly Gly Ala  
 245 250 255  
 Ile Asp Cys Asn Lys Ala Gly Ala Asn Pro Asp Pro Ile Leu Thr Leu  
 260 265 270  
 Ser Gly Asn Glu Ser Leu His Phe Leu Asn Asn Thr Ala Gly Asn Ser  
 275 280 285  
 Gly Gly Ala Ile Tyr Thr Lys Lys Leu Val Leu Ser Ser Gly Arg Gly  
 290 295 300  
 Gly Val Leu Phe Ser Asn Asn Lys Ala Ala Asn Ala Thr Pro Lys Gly  
 305 310 315 320  
 Gly Ala Ile Ala Ile Leu Asp Ser Gly Glu Ile Ser Ile Ser Ala Asp  
 325 330 335  
 Leu Gly Asn Ile Ile Phe Glu Gly Asn Thr Thr Ser Thr Thr Gly Ser  
 340 345 350  
 Pro Ala Ser Val Thr Arg Asn Ala Ile Asp Leu Ala Ser Asn Ala Lys  
 355 360 365  
 Phe Leu Asn Leu Arg Ala Thr Arg Gly Asn Lys Val Ile Phe Tyr Asp  
 370 375 380  
 Pro Ile Thr Ser Ser Gly Ala Thr Asp Lys Leu Ser Leu Asn Lys Ala  
 385 390 395 400  
 Asp Ala Gly Ser Gly Asn Thr Tyr Glu Gly Tyr Ile Val Phe Ser Gly  
 405 410 415  
 Glu Lys Leu Ser Glu Val Arg Asn Leu Thr Ile  
 420 425

&lt;210&gt;32

&lt;211&gt;507

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;32

Arg Leu His Arg Phe Leu Trp Arg Glu Thr Leu Arg Ser Lys Lys Pro  
 1 5 10 15  
 Asp Asn Leu Lys Ser Thr Phe Thr Gln Ala Val Glu Leu Ala Ala Gly  
 20 25 30

Ala Leu Val Leu Lys Asp Gly Val Thr Val Val Ala Asn Thr Ile Thr  
 35 40 45  
 Gln Val Glu Gly Ser Lys Val Val Met Asp Gly Gly Thr Thr Phe Glu  
 50 55 60  
 Ala Ser Ala Glu Gly Val Thr Leu Asn Gly Leu Ala Ile Asn Ile Asp  
 65 70 75 80  
 Ser Leu Asp Gly Thr Asn Lys Ala Ile Ile Lys Ala Thr Ala Ala Ser  
 85 90 95  
 Lys Asp Val Ala Leu Ser Gly Pro Ile Met Leu Val Asp Ala Gln Gly  
 100 105 110  
 Asn Tyr Tyr Glu His His Asn Leu Ser Gln Gln Gln Val Phe Ala Leu  
 115 120 125  
 Ile Glu Leu Ser Ala Gln Gly Thr Met Thr Thr Thr Asp Ile Pro Asp  
 130 135 140  
 Thr Pro Ile Leu Asn Thr Thr Asn His Tyr Gly Ile Lys Gly Thr Gly  
 145 150 155 160  
 Ile Ile Val Trp Val Asp Asp Ala Thr Ala Lys Thr Lys Asn Ala Thr  
 165 170 175  
 Leu Thr Trp Thr Lys Thr Gly Tyr Lys Pro Asn Pro Glu Arg Gln Gly  
 180 185 190  
 Pro Leu Val Pro Asn Ser Leu Trp Gly Ser Phe Val Asp Val Arg Ser  
 195 200 205  
 Ile Gln Ser Leu Met Asp Arg Ser Thr Ser Ser Leu Ser Ser Ser Thr  
 210 215 220  
 Asn Leu Trp Val Ser Gly Ile Ala Asp Phe Leu His Glu Asp Gln Lys  
 225 230 235 240  
 Gly Asn Gln Arg Ser Tyr Arg His Ser Ser Ala Gly Tyr Ala Leu Gly  
 245 250 255  
 Gly Gly Phe Phe Thr Ala Ser Glu Asn Phe Phe Asn Phe Ala Phe Cys  
 260 265 270  
 Gln Leu Phe Gly Tyr Asp Lys Asp His Leu Val Ala Lys Asn His Thr  
 275 280 285  
 His Val Tyr Ala Gly Ala Met Ser Tyr Arg His Leu Gly Glu Ser Lys  
 290 295 300  
 Thr Leu Ala Lys Ile Leu Ser Gly Asn Ser Asp Ser Leu Pro Phe Val  
 305 310 315 320  
 Phe Asn Ala Arg Phe Ala Tyr Gly His Thr Asp Asn Asn Met Thr Thr  
 325 330 335  
 Lys Tyr Thr Gly Tyr Ser Pro Val Lys Gly Ser Trp Gly Asn Asp Ala  
 340 345 350  
 Phe Gly Ile Glu Cys Gly Gly Ala Ile Pro Val Val Ala Ser Gly Arg  
 355 360 365  
 Arg Ser Trp Val Asp Thr His Thr Pro Phe Leu Asn Leu Glu Met Ile  
 370 375 380  
 Tyr Ala His Gln Asn Asp Phe Lys Glu Asn Gly Thr Glu Gly Arg Ser  
 385 390 395 400  
 Phe Gln Ser Glu Asp Leu Phe Asn Leu Ala Val Pro Val Gly Ile Lys  
 405 410 415  
 Phe Glu Lys Phe Ser Asp Lys Ser Thr Tyr Asp Leu Ser Ile Ala Tyr  
 420 425 430  
 Val Pro Asp Val Ile Arg Asn Asp Pro Gly Cys Thr Thr Thr Leu Met  
 435 440 445  
 Val Ser Gly Asp Ser Trp Ser Thr Cys Gly Thr Ser Leu Ser Arg Gln  
 450 455 460  
 Ala Leu Leu Val Arg Ala Gly Asn His His Ala Phe Ala Ser Asn Phe  
 465 470 475 480  
 Glu Val Phe Ser Gln Phe Glu Val Glu Leu Arg Gly Ser Ser Arg Ser  
 485 490 495  
 Tyr Ala Ile Asp Leu Gly Gly Arg Phe Gly Phe  
 500 505

&lt;210&gt;33

&lt;211&gt;494

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;33

```

Met Lys Thr Ser Val Ser Met Leu Leu Ala Leu Leu Cys Ser Gly Ala
 1          5          10          15
Ser Ser Ile Val Leu His Ala Ala Thr Pro Leu Asn Pro Glu Asp
          20          25          30
Gly Phe Ile Gly Glu Gly Asn Thr Asn Thr Phe Ser Pro Lys Ser Thr
          35          40          45
Thr Asp Ala Ala Gly Thr Thr Tyr Ser Leu Thr Gly Glu Val Leu Tyr
          50          55          60
Ile Asp Pro Gly Lys Gly Gly Ser Ile Thr Gly Thr Cys Phe Val Glu
          65          70          75          80
Thr Ala Gly Asp Leu Thr Phe Leu Gly Asn Gly Asn Thr Leu Lys Phe
          85          90          95
Leu Ser Val Asp Ala Gly Ala Asn Ile Ala Val Ala His Val Gln Gly
          100          105          110
Ser Lys Asn Leu Ser Phe Thr Asp Phe Leu Ser Leu Val Ile Thr Glu
          115          120          125
Ser Pro Lys Ser Ala Val Thr Thr Gly Lys Gly Ser Leu Val Ser Leu
          130          135          140
Gly Ala Val Gln Leu Gln Asp Ile Asn Thr Leu Val Leu Thr Ser Asn
          145          150          155          160
Ala Ser Val Glu Asp Gly Gly Val Ile Lys Gly Asn Ser Cys Leu Ile
          165          170          175
Gln Gly Ile Lys Asn Ser Ala Ile Phe Gly Gln Asn Thr Ser Ser Lys
          180          185          190
Lys Gly Gly Ala Ile Ser Thr Thr Gln Gly Leu Thr Ile Glu Asn Asn
          195          200          205
Leu Gly Thr Leu Lys Phe Asn Glu Asn Lys Ala Val Thr Ser Gly Gly
          210          215          220
Ala Leu Asp Leu Gly Ala Ala Ser Thr Phe Thr Ala Asn His Glu Leu
          225          230          235          240
Ile Phe Ser Gln Asn Lys Thr Ser Gly Asn Ala Ala Asn Gly Gly Ala
          245          250          255
Ile Asn Cys Ser Gly Asp Leu Thr Phe Thr Asp Asn Thr Ser Leu Leu
          260          265          270
Leu Gln Glu Asn Ser Thr Met Gln Asp Gly Gly Ala Leu Cys Ser Thr
          275          280          285
Gly Thr Ile Ser Ile Thr Gly Ser Asp Ser Ile Asn Val Ile Gly Asn
          290          295          300
Thr Ser Gly Gln Lys Gly Gly Ala Ile Ser Ala Ala Ser Leu Lys Ile
          305          310          315          320
Leu Gly Gly Gln Gly Gly Ala Leu Phe Ser Asn Asn Val Val Thr His
          325          330          335
Ala Thr Pro Leu Gly Gly Ala Ile Phe Ile Asn Thr Gly Gly Ser Leu
          340          345          350
Gln Leu Phe Thr Gln Gly Gly Asp Ile Val Phe Glu Gly Asn Gln Val
          355          360          365
Thr Thr Thr Ala Pro Asn Ala Thr Thr Lys Arg Asn Val Ile His Leu
          370          375          380
Glu Ser Thr Ala Lys Trp Thr Gly Leu Ala Ala Ser Gln Gly Asn Ala
          385          390          395          400
Ile Tyr Phe Tyr Asp Pro Ile Thr Thr Asn Asp Thr Gly Ala Ser Asp
          405          410          415
Asn Leu Arg Ile Asn Glu Val Ser Ala Asn Gln Lys Leu Ser Gly Ser
          420          425          430
Ile Val Phe Ser Gly Glu Arg Leu Ser Thr Ala Glu Ala Ile Ala Glu
          435          440          445
Asn Leu Thr Ser Arg Ile Asn Gln Pro Val Thr Leu Val Glu Gly Ser
          450          455          460
Leu Val Leu Lys Gln Gly Val Thr Leu Ile Thr Gln Gly Phe Ser Gln
          465          470          475          480
Glu Pro Glu Ser Thr Leu Leu Leu Asp Leu Gly Thr Ser Leu
          485          490

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&lt;210&gt;34

&lt;211&gt;86

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;34

```

Met Val Ser Ala Phe Ile Asp Lys Phe Val Met Thr Ile Ser Ser Val
 1           5           10           15
Glu Ala Tyr Asn Glu Val Pro Arg Ser Lys Arg Ser Val Asp Ser Gly
           20           25           30
Ser Cys Glu Asn Pro Cys Val Ile Lys Val Thr Pro Cys Leu Ser Thr
           35           40           45
Lys Leu Pro Ser Thr Lys Val Thr Gly Trp Leu Ile Leu Glu Val Arg
           50           55           60
Phe Ser Ala Ile Ala Ser Ala Val Asp Asn Leu Ser Pro Glu Asn Thr
           65           70           75           80
Ile Asp Pro Glu Ser Phe
                        85

```

&lt;210&gt;35

&lt;211&gt;450

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;35

```

Ala Ser Thr Glu Asp Ile Val Ile Thr Asn Leu Ser Ile Asn Ala Asp
 1           5           10           15
Thr Ile Tyr Gly Lys Asn Pro Ile Asn Ile Val Ala Ser Ala Ala Asn
           20           25           30
Lys Asn Ile Thr Leu Thr Gly Thr Leu Ala Leu Val Asn Ala Asp Gly
           35           40           45
Ala Phe Tyr Glu Asn His Thr Leu Gln Asp Ser Gln Asp Tyr Ser Phe
           50           55           60
Val Lys Leu Ser Pro Gly Ala Gly Gly Thr Ile Ile Thr Gln Asp Ala
           65           70           75           80
Ser Gln Lys Pro Leu Glu Val Ala Pro Ser Arg Pro His Tyr Gly Tyr
           85           90           95
Gln Gly His Trp Asn Val Gln Val Ile Pro Gly Thr Gly Thr Gln Pro
           100          105          110
Ser Gln Ala Asn Leu Glu Trp Val Arg Thr Gly Tyr Leu Pro Asn Pro
           115          120          125
Glu Arg Gln Gly Ser Leu Val Pro Asn Ser Leu Trp Gly Ser Phe Val
           130          135          140
Asp Gln Arg Ala Ile Gln Glu Ile Met Val Asn Ser Ser Gln Ile Leu
           145          150          155          160
Cys Gln Glu Arg Gly Val Trp Gly Ala Gly Ile Ala Asn Phe Leu His
           165          170          175
Arg Asp Lys Ile Asn Glu His Arg Tyr Arg His Ser Gly Val Gly Tyr
           180          185          190
Leu Val Gly Val Gly Thr His Ala Phe Ser Asp Ala Thr Ile Asn Ala
           195          200          205
Ala Phe Cys Gln Leu Phe Ser Arg Asp Lys Asp Tyr Val Val Ser Lys
           210          215          220
Asn His Gly Thr Ser Tyr Ser Gly Val Val Phe Leu Glu Asp Thr Leu
           225          230          235          240
Glu Phe Arg Ser Pro Gln Gly Phe Tyr Thr Asp Ser Ser Ser Glu Ala
           245          250          255
Cys Cys Asn Gln Val Val Thr Ile Asp Met Gln Leu Ser Tyr Ser His
           260          265          270
Arg Asn Asn Asp Met Lys Thr Lys Tyr Thr Thr Tyr Pro Glu Ala Gln
           275          280          285
Gly Ser Trp Ala Asn Asp Val Phe Gly Leu Glu Phe Gly Ala Thr Thr
           290          295          300
Tyr Tyr Tyr Pro Asn Ser Thr Phe Leu Phe Asp Tyr Tyr Ser Pro Phe
           305          310          315          320
Leu Arg Leu Gln Cys Thr Tyr Ala His Gln Glu Asp Phe Lys Glu Thr
           325          330          335
Gly Gly Glu Val Arg His Phe Thr Ser Gly Asp Leu Phe Asn Leu Ala

```

340 345 350  
 Val Pro Ile Gly Val Lys Phe Glu Arg Phe Ser Asp Cys Lys Arg Gly  
 355 360 365  
 Ser Tyr Glu Leu Thr Phe Ala Tyr Val Pro Asp Val Ile Arg Lys Asp  
 370 375 380  
 Pro Lys Ser Thr Ala Thr Leu Ala Ser Gly Ala Thr Trp Ser Thr His  
 385 390 395 400  
 Gly Asn Asn Leu Ser Arg Gln Gly Leu Gln Leu Arg Leu Gly Asn His  
 405 410 415  
 Cys Leu Ile Asn Pro Gly Ile Glu Val Phe Ser His Gly Ala Ile Glu  
 420 425 430  
 Leu Arg Gly Ser Ser Arg Asn Tyr Asn Ile Asn Leu Gly Gly Lys Tyr  
 435 440 445  
 Arg Phe  
 450  
 <210>36  
 <211>661  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>36  
 Lys Leu Trp Ser Asn Pro Asn Leu Arg Leu Met Lys Arg Cys Phe Leu  
 1 5 10 15  
 Phe Leu Ala Ser Phe Val Leu Met Gly Ser Ser Ala Asp Ala Leu Thr  
 20 25 30  
 His Gln Glu Ala Val Lys Lys Lys Asn Ser Tyr Leu Ser His Phe Lys  
 35 40 45  
 Ser Val Ser Gly Ile Val Thr Ile Glu Asp Gly Val Leu Asn Ile His  
 50 55 60  
 Asn Asn Leu Arg Ile Gln Ala Asn Lys Val Tyr Val Glu Asn Thr Val  
 65 70 75 80  
 Gly Gln Ser Leu Lys Leu Val Ala His Gly Asn Val Met Val Asn Tyr  
 85 90 95  
 Arg Ala Lys Thr Leu Val Cys Asp Tyr Leu Glu Tyr Tyr Glu Asp Thr  
 100 105 110  
 Asp Ser Cys Leu Leu Thr Asn Gly Arg Phe Ala Met Tyr Pro Trp Phe  
 115 120 125  
 Leu Gly Gly Ser Met Ile Thr Leu Thr Pro Glu Thr Ile Val Ile Arg  
 130 135 140  
 Lys Gly Tyr Ile Ser Thr Ser Glu Gly Pro Lys Lys Asp Leu Cys Leu  
 145 150 155 160  
 Ser Gly Asp Tyr Leu Glu Tyr Ser Ser Asp Ser Leu Leu Ser Ile Gly  
 165 170 175  
 Lys Thr Thr Leu Arg Val Cys Arg Ile Pro Ile Leu Phe Leu Pro Pro  
 180 185 190  
 Phe Ser Ile Met Pro Met Glu Ile Pro Lys Pro Pro Ile Asn Phe Arg  
 195 200 205  
 Gly Gly Thr Gly Gly Phe Leu Gly Ser Tyr Leu Gly Met Ser Tyr Ser  
 210 215 220  
 Pro Ile Ser Arg Lys His Phe Ser Ser Thr Phe Phe Leu Asp Ser Phe  
 225 230 235 240  
 Phe Lys His Gly Val Gly Met Gly Phe Asn Leu His Cys Ser Gln Lys  
 245 250 255  
 Gln Val Pro Glu Asn Val Phe Asn Met Lys Ser Tyr Tyr Ala His Arg  
 260 265 270  
 Leu Ala Ile Asp Met Ala Glu Ala His Asp Arg Tyr Arg Leu His Gly  
 275 280 285  
 Asp Phe Cys Phe Thr His Lys His Val Asn Phe Ser Gly Glu Tyr His  
 290 295 300  
 Leu Ser Asp Ser Trp Glu Thr Val Ala Asp Ile Phe Pro Asn Asn Phe  
 305 310 315 320  
 Met Leu Lys Asn Thr Gly Pro Thr Arg Val Asp Cys Thr Trp Asn Asp  
 325 330 335  
 Asn Tyr Phe Glu Gly Tyr Leu Thr Ser Ser Val Lys Val Asn Ser Phe  
 340 345 350

Gln Asn Ala Asn Gln Glu Leu Pro Tyr Leu Thr Leu Arg Gln Tyr Pro  
 355 360 365  
 Ile Ser Ile Tyr Asn Thr Gly Val Tyr Leu Glu Asn Ile Val Glu Cys  
 370 375 380  
 Gly Tyr Leu Asn Phe Ala Phe Ser Asp His Ile Val Gly Glu Asn Phe  
 385 390 395 400  
 Ser Ser Leu Arg Leu Ala Ala Arg Pro Lys Leu His Lys Thr Val Pro  
 405 410 415  
 Leu Pro Ile Gly Thr Leu Ser Ser Thr Leu Gly Ser Ser Leu Ile Tyr  
 420 425 430  
 Tyr Ser Asp Val Pro Glu Ile Ser Ser Arg His Ser Gln Leu Ser Ala  
 435 440 445  
 Lys Leu Gln Leu Asp Tyr Arg Phe Leu Leu His Lys Ser Tyr Ile Gln  
 450 455 460  
 Arg Arg His Ile Ile Glu Pro Phe Val Thr Phe Ile Thr Glu Thr Arg  
 465 470 475 480  
 Pro Leu Ala Lys Asn Glu Asp His Tyr Ile Phe Ser Ile Gln Asp Ala  
 485 490 495  
 Phe His Ser Leu Asn Leu Leu Lys Ala Gly Ile Asp Thr Ser Val Leu  
 500 505 510  
 Ser Lys Thr Asn Pro Arg Phe Pro Arg Ile His Ala Lys Leu Trp Thr  
 515 520 525  
 Thr His Ile Leu Ser Asn Thr Glu Ser Lys Pro Thr Phe Pro Lys Thr  
 530 535 540  
 Ala Cys Glu Leu Ser Leu Pro Phe Gly Lys Lys Asn Thr Val Ser Leu  
 545 550 555 560  
 Asp Ala Glu Trp Ile Trp Lys Lys His Cys Trp Asp His Met Asn Ile  
 565 570 575  
 Arg Trp Glu Trp Ile Gly Asn Asp Asn Val Ala Met Thr Leu Glu Ser  
 580 585 590  
 Leu His Arg Ser Lys Tyr Ser Leu Ile Lys Cys Asp Arg Glu Asn Phe  
 595 600 605  
 Ile Leu Asp Val Ser Arg Pro Ile Asp Gln Leu Leu Asp Ser Pro Leu  
 610 615 620  
 Ser Asp His Arg Asn Leu Ile Leu Gly Lys Leu Phe Val Arg Pro His  
 625 630 635 640  
 Pro Cys Trp Asn Tyr Arg Leu Ser Leu Arg Tyr Gly Trp His Arg Arg  
 645 650 655  
 Thr Leu Arg Thr Thr  
 660

&lt;210&gt;37

&lt;211&gt;245

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;37

Glu Gln Arg Ser Lys Leu Asn Val Ala Leu Ala Leu Leu Glu Leu Gly  
 1 5 10 15  
 Cys Asp Thr Pro Lys Leu Leu Glu Tyr Ile Thr Glu Arg Leu Val Gln  
 20 25 30  
 Pro His Tyr Asn Glu Thr Leu Ala Leu Ser Phe Ser Lys Gly Arg Thr  
 35 40 45  
 Leu Gln Asn Trp Lys Arg Val Asn Ile Ile Val Pro Gln Asp Pro Gln  
 50 55 60  
 Glu Arg Glu Arg Leu Leu Ser Thr Thr Arg Gly Leu Glu Glu Gln Ile  
 65 70 75 80  
 Leu Thr Phe Leu Phe Arg Leu Pro Lys Glu Ala Tyr Leu Pro Cys Ile  
 85 90 95  
 Tyr Lys Leu Leu Ala Ser Gln Lys Thr Gln Leu Ala Thr Thr Ala Ile  
 100 105 110  
 Ser Phe Leu Ser His Thr Ser His Gln Glu Ala Leu Asp Leu Leu Phe  
 115 120 125  
 Gln Ala Ala Lys Leu Pro Gly Glu Pro Ile Ile Arg Ala Tyr Ala Asp  
 130 135 140  
 Leu Ala Ile Tyr Asn Leu Thr Lys Asp Pro Glu Lys Lys Arg Ser Leu

145 150 155 160  
 His Asp Tyr Ala Lys Lys Leu Ile Gln Glu Thr Leu Leu Phe Val Asp  
 165 170 175  
 Thr Glu Asn Gln Arg Pro His Pro Ser Met Pro Tyr Leu Arg Tyr Gln  
 180 185 190  
 Val Thr Pro Glu Ser Arg Thr Lys Leu Met Leu Asp Ile Leu Glu Thr  
 195 200 205  
 Leu Ala Thr Ser Lys Ser Ser Glu Asp Ile Arg Leu Leu Ile Gln Leu  
 210 215 220  
 Met Thr Glu Gly Asp Ala Lys Asn Phe Pro Val Leu Ala Gly Leu Leu  
 225 230 235 240  
 Ile Lys Ile Val Glu  
 245

&lt;210&gt;38

&lt;211&gt;348

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;38

Cys Ser Arg Ser Pro Tyr Pro Asn Ile Glu Ile Leu Ala Arg Gly Val  
 1 5 10 15  
 Glu His Arg Ser Met Gly Leu Phe His Leu Thr Leu Phe Gly Leu Leu  
 20 25 30  
 Leu Cys Ser Leu Pro Ile Ser Leu Val Ala Lys Phe Pro Glu Ser Val  
 35 40 45  
 Gly His Lys Ile Leu Tyr Ile Ser Thr Gln Ser Thr Gln Gln Ala Leu  
 50 55 60  
 Ala Thr Tyr Leu Glu Ala Leu Asp Ala Tyr Gly Asp His Asp Phe Phe  
 65 70 75 80  
 Val Leu Arg Lys Ile Gly Glu Asp Tyr Leu Lys Gln Ser Ile His Ser  
 85 90 95  
 Ser Asp Pro Gln Thr Arg Lys Ser Thr Ile Ile Gly Ala Gly Leu Ala  
 100 105 110  
 Gly Ser Ser Glu Ala Leu Asp Val Leu Ser Gln Ala Met Glu Thr Ala  
 115 120 125  
 Asp Pro Leu Gln Gln Leu Leu Val Leu Ser Ala Val Ser Gly His Leu  
 130 135 140  
 Gly Lys Thr Ser Asp Asp Leu Leu Phe Lys Ala Leu Ala Ser Pro Tyr  
 145 150 155 160  
 Pro Val Ile Arg Leu Glu Ala Ala Tyr Arg Leu Ala Asn Leu Lys Asn  
 165 170 175  
 Thr Lys Val Ile Asp His Leu His Ser Phe Ile His Lys Leu Pro Glu  
 180 185 190  
 Glu Ile Gln Cys Leu Ser Ala Ala Ile Phe Leu Arg Leu Glu Thr Glu  
 195 200 205  
 Glu Ser Asp Ala Tyr Ile Arg Asp Leu Leu Ala Ala Lys Lys Ser Ala  
 210 215 220  
 Ile Arg Ser Ala Thr Ala Leu Gln Ile Gly Glu Tyr Gln Gln Lys Arg  
 225 230 235 240  
 Phe Leu Pro Thr Leu Arg Asn Leu Leu Thr Ser Ala Ser Pro Gln Asp  
 245 250 255  
 Gln Glu Ala Ile Leu Tyr Ala Leu Gly Lys Leu Lys Asp Gly Gln Ser  
 260 265 270  
 Tyr Tyr Asn Ile Lys Lys Gln Leu Gln Lys Pro Asp Val Asp Val Thr  
 275 280 285  
 Leu Ala Ala Ala Gln Ala Leu Ile Ala Leu Gly Lys Glu Glu Asp Ala  
 290 295 300  
 Leu Pro Val Ile Lys Lys Gln Ala Leu Glu Glu Arg Pro Arg Ala Leu  
 305 310 315 320  
 Tyr Ala Leu Arg His Leu Pro Ser Glu Ile Gly Ile Pro Ile Ala Leu  
 325 330 335  
 Pro Ile Phe Leu Lys Thr Lys Asn Ser Glu Ala Ser  
 340 345

&lt;210&gt;39

&lt;211&gt;196



&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;39

```

Met Ser Leu Pro Leu Val Leu Gly Ser Ser Ser Pro Arg Arg Lys Phe
1           5           10           15
Ile Leu Glu Lys Phe Arg Val Pro Phe Thr Val Ile Pro Ser Asn Phe
20           25           30
Asp Glu Ser Lys Val Ser Tyr Ser Gly Asp Pro Ile Ala Tyr Thr Gln
35           40           45
Glu Leu Ala Ala Gln Lys Ala Tyr Ala Val Ser Glu Leu His Ser Pro
50           55           60
Cys Asp Cys Ile Ile Leu Thr Gly Asp Thr Ile Val Ser Tyr Asp Gly
65           70           75           80
Arg Ile Phe Thr Lys Pro Gln Xaa Lys Ala Xaa Ala Ile Gln Met Leu
85           90           95
Lys Thr Leu Arg Asn Gln Thr His Asp Val Val Thr Ser Ile Ala Val
100          105          110
Leu His Lys Gly Lys Leu Leu Thr Gly Ser Glu Thr Ser Gln Ile Ser
115          120          125
Leu Thr Met Ile Pro Asp His Arg Ile Glu Ser Tyr Ile Asp Thr Val
130          135          140
Gly Thr Leu Asn Asn Cys Gly Ala Tyr Asp Val Cys His Gly Gly Leu
145          150          155          160
Ile Leu Lys Lys Val His Gly Cys Val Tyr Asn Val Gln Gly Leu Pro
165          170          175
Ile Gln Thr Leu Lys Tyr Leu Leu Glu Leu Asn Ile Asp Leu Trp
180          185          190
Asp Tyr Ser Ile
195

```

&lt;210&gt;40

&lt;211&gt;127

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;40

```

Val Xaa Arg Asn Arg Lys Thr Gly Ile Asn Asp Gln Glu Ile Arg Ser
1           5           10           15
Val Leu Gly Lys Met Leu Phe Gly Gly Asp Asp Ala Phe Lys Gln Ile
20           25           30
Gln Ala Leu Ser Gly Gly Glu Thr Ala Arg Leu Leu Met Ala Gly Met
35           40           45
Met Leu Glu Asn His Asn Val Leu Ile Leu Asp Glu Ala Asn Asn His
50           55           60
Leu Asp Leu Glu Ser Val Ser Ala Leu Ser Trp Ala Ile Asn Asp Tyr
65           70           75           80
Lys Gly Thr Ala Ile Phe Val Ser His Asp Arg Gly Leu Ile Gln Asp
85           90           95
Cys Ala Thr Lys Leu Leu Ile Phe Asp Lys Asp Lys Ile Thr Phe Phe
100          105          110
Asp Gly Thr Met Val Asp Tyr Thr Ala Gly His Lys Gln Leu Leu
115          120          125

```

&lt;210&gt;41

&lt;211&gt;432

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;41

```

Leu Tyr Ser Lys Gln His Phe Val Met Leu Ser Ala Met Ser Ile Val
1           5           10           15
Leu Asp Lys Ile Gly Lys Ser Leu Gly Thr Arg Ile Leu Phe Asp Asp
20           25           30
Val Ser Val Val Phe Asn Pro Gly Asn Cys Tyr Gly Leu Thr Gly Pro
35           40           45
Asn Gly Ala Gly Lys Ser Thr Leu Leu Lys Ile Ile Met Gly Met Ile
50           55           60
Glu Pro Thr Arg Gly Ser Ile Ser Leu Pro Lys Lys Val Gly Ile Leu

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65          70          75          80
Arg Gln Asn Ile Asp Ser Phe His Asp Thr Thr Val Leu Asp Cys Val
      85          90          95
Ile Met Gly Asn Thr Arg Leu Trp Glu Ala Leu Gln Arg Arg Asp Asn
      100          105          110
Leu Tyr Leu Gln Glu Phe Thr Asp Ala Ile Gly Met Glu Leu Gly Glu
      115          120          125
Ile Glu Glu Ile Ile Gly Glu Glu Asn Gly Tyr Arg Ala Asp Ser Glu
      130          135          140
Ala Glu Glu Leu Leu Thr Gly Ile Gly Ile Pro Asn Glu Met Phe Asp
      145          150          155          160
Lys Lys Met Ala Met Ile Pro Ile Asp Leu Gln Phe Arg Val Leu Leu
      165          170          175
Cys Gln Ala Leu Phe Gly His Pro Glu Ala Leu Leu Leu Asp Glu Pro
      180          185          190
Thr Asn His Leu Asp Leu Tyr Ser Ile Asn Trp Leu Gly Asn Phe Leu
      195          200          205
Lys Asp Tyr Glu Gly Thr Val Ile Val Val Ser His Asp Arg His Phe
      210          215          220
Leu Asn Thr Ile Thr Thr His Ile Ala Asp Ile Asp Tyr Asp Thr Ile
      225          230          235          240
Ile Ile Tyr Pro Gly Asn Tyr Asp Asp Met Val Glu Met Lys Thr Ala
      245          250          255
Ser Arg Glu Gln Glu Lys Ala Asp Ile Lys Ser Lys Glu Lys Lys Ile
      260          265          270
Ser Gln Leu Lys Glu Phe Val Ala Lys Phe Gly Ala Gly Ser Arg Ala
      275          280          285
Ser Gln Val Gln Ser Arg Leu Arg Glu Ile Lys Lys Leu Gln Pro Gln
      290          295          300
Glu Leu Lys Lys Ser Asn Ile Gln Arg Pro Tyr Ile Arg Phe Pro Leu
      305          310          315          320
Ser Asp Lys Ser Ser Gly Lys Val Val Leu Ser Leu Glu Ala Ile Thr
      325          330          335
Lys Asp Tyr Gly Asp His Gln Val Ile His Pro Phe Ser Leu Glu Ile
      340          345          350
Tyr Gln Gly Asp Lys Leu Gly Ile Ile Gly Asn Asn Gly Leu Gly Lys
      355          360          365
Thr Thr Leu Met Lys Leu Leu Ala Gly Val Glu Ala Pro Ser Ser Gly
      370          375          380
Ser Ile Lys Leu Gly His Gln Ala Ile Cys Ser Tyr Phe Pro Gln Asn
      385          390          395          400
His Ser Asp Val Leu Ala Asp Cys Gly Gln Glu Thr Leu Phe Glu Xaa
      405          410          415
Tyr Ala Ile Ala Lys Pro Glu Leu Thr Ile Lys Lys Ser Ala Val Cys
      420          425          430

```

&lt;210&gt;42

&lt;211&gt;131

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;42

```

Arg Glu Val Met Ile Ala Ser Ile Tyr Ser Phe Leu Asp Tyr Leu Lys
  1          5          10          15
Met Val Lys Ser Ala Ser Pro His Thr Leu Arg Asn Tyr Cys Leu Asp
      20          25          30
Leu Asn Gly Leu Lys Ile Phe Leu Xaa Glu Arg Gly Asn Leu Ala Pro
      35          40          45
Ser Ser Pro Leu Gln Leu Ala Thr Glu Lys Arg Lys Val Ser Glu Leu
      50          55          60
Pro Phe Ser Leu Phe Thr Lys Glu His Val Arg Met Tyr Ile Ala Lys
      65          70          75          80
Leu Ile Glu Asn Gly Lys Ala Lys Arg Thr Ile Lys Arg Cys Leu Ser
      85          90          95
Ser Ile Lys Ser Phe Ala His Tyr Cys Val Ile Gln Lys Ile Leu Leu
      100          105          110

```

Glu Asn Leu Arg Lys Leu Ser Thr Asp Leu Val Phe Leu Arg Ser Cys  
           115                          120                          125  
 Leu Pro Arg  
           130  
 <210>43  
 <211>307  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>43  
 Met Ser Ser Arg Glu Leu Ile Ile Leu Gly Cys Ser Ser Gln Gln Pro  
   1                  5                  10                  15  
 Thr Arg Thr Arg Asn Gln Gly Ala Tyr Leu Phe Arg Trp Asn Gly Glu  
                   20                  25                  30  
 Gly Leu Leu Phe Asp Pro Gly Glu Gly Thr Gln Arg Gln Phe Ile Phe  
                   35                  40                  45  
 Ala Asn Ile Ala Pro Thr Thr Val Asn Arg Ile Phe Val Ser His Phe  
                   50                  55                  60  
 His Gly Asp His Cys Leu Gly Leu Gly Ser Met Leu Met Arg Leu Asn  
                   65                  70                  75                  80  
 Leu Asp Lys Val Ser His Pro Ile His Cys Tyr Tyr Pro Ala Ser Gly  
                   85                  90                  95  
 Lys Lys Tyr Phe Asp Arg Leu Arg Tyr Gly Thr Ile Tyr His Glu Thr  
                   100                  105                  110  
 Ile Gln Val Val Glu His Pro Ile Ser Glu Glu Gly Ile Val Glu Asp  
                   115                  120                  125  
 Phe Gly Ser Phe Arg Ile Glu Ala Gln Arg Leu Gln His Gln Val Asp  
                   130                  135                  140  
 Thr Leu Gly Trp Arg Ile Thr Glu Pro Asp Thr Ile Lys Phe Leu Pro  
                   145                  150                  155                  160  
 Lys Glu Leu Glu Ser Arg Gly Ile Arg Gly Leu Ile Ile Gln Asp Leu  
                   165                  170                  175  
 Ile Arg Asp Gln Glu Ile Ser Ile Gly Gly Ser Thr Val Tyr Leu Ser  
                   180                  185                  190  
 Asp Val Ser Tyr Val Arg Lys Gly Asp Ser Ile Ala Ile Ile Ala Asp  
                   195                  200                  205  
 Thr Leu Pro Cys Gln Ala Ala Ile Asp Leu Ala Lys Asn Ser Cys Met  
                   210                  215                  220  
 Met Leu Cys Glu Ser Thr Tyr Leu Glu Gln His Arg His Leu Ala Glu  
                   225                  230                  235                  240  
 Ser His Phe His Met Thr Ala Lys Gln Ala Ala Thr Leu Ala Lys Arg  
                   245                  250                  255  
 Ala Ala Thr Gln Lys Leu Ile Leu Thr His Phe Ser Ala Arg Tyr Leu  
                   260                  265                  270  
 Asn Leu Asp Asp Phe Tyr Lys Glu Ala Ser Ala Val Phe Pro Asn Val  
                   275                  280                  285  
 Ser Val Ala Gln Glu Tyr Arg Ser Tyr Pro Phe Pro Lys Asn Pro Leu  
                   290                  295                  300  
 Leu Asn Lys  
           305  
 <210>44  
 <211>440  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>44  
 Ala Phe Gln Arg Ile Lys Arg Lys Tyr His Leu Ser Cys Arg Pro Ser  
   1                  5                  10                  15  
 Arg Ser Trp Glu Asn Lys His Arg Ala His Ile Ala Lys Val Leu His  
                   20                  25                  30  
 Arg Lys Phe Phe Arg Phe Ser Val Gly Gly Met Arg Asp Glu Ala Glu  
                   35                  40                  45  
 Ile Lys Gly His Arg Arg Thr Tyr Ile Gly Ala Met Pro Gly Lys Met  
                   50                  55                  60  
 Val Gln Ala Leu Lys Gln Ser Gln Ala Met Asn Pro Val Ile Met Ile  
                   65                  70                  75                  80

Asp Glu Val Asp Lys Ile Gly Ala Ser Tyr His Gly Asp Pro Ala Ser  
 85 90 95  
 Ala Leu Leu Glu Val Leu Asp Pro Glu Gln Asn Lys Asp Phe Leu Asp  
 100 105 110  
 His Tyr Leu Asp Val Arg Val Asp Leu Ser Asn Val Leu Phe Ile Leu  
 115 120 125  
 Thr Ala Asn Val Leu Asp Thr Ile Pro Asp Pro Leu Leu Asp Arg Met  
 130 135 140  
 Glu Ile Leu Arg Leu Ser Gly Tyr Ile Leu Glu Glu Lys Leu Gln Ile  
 145 150 155 160  
 Ala Lys Lys Tyr Leu Val Pro Lys Ala Arg Lys Glu Ile Gly Leu Thr  
 165 170 175  
 Ala Ser Glu Val Asn Phe Gln Pro Glu Ala Leu Lys Tyr Met Ile Asn  
 180 185 190  
 Asn Tyr Ala Arg Glu Ala Gly Val Arg Thr Leu Asn Gly Asn Ile Lys  
 195 200 205  
 Lys Val Leu Arg Lys Val Ala Leu Lys Ile Val Gln Asn Gln Glu Lys  
 210 215 220  
 Pro Lys Ser Lys Lys Ile Thr Phe Lys Ile Ser Ser Lys Asn Leu Gln  
 225 230 235 240  
 Thr Tyr Leu Gly Lys Pro Ile Phe Ser Ser Asp Arg Phe Tyr Glu Ser  
 245 250 255  
 Thr Pro Val Gly Val Ala Thr Gly Leu Ala Trp Thr Ser Leu Gly Gly  
 260 265 270  
 Ala Thr Leu Tyr Ile Glu Ser Val Gln Val Ser Ser Leu Lys Thr Asp  
 275 280 285  
 Met His Leu Thr Gly Gln Ala Gly Glu Val Met Lys Glu Ser Ser Gln  
 290 295 300  
 Ile Ala Trp Thr Tyr Leu His Ser Ala Leu His Arg Tyr Ala Pro Gly  
 305 310 315 320  
 Tyr Thr Phe Phe Pro Lys Ser Gln Val His Ile His Ile Pro Glu Gly  
 325 330 335  
 Ala Thr Pro Lys Asp Gly Pro Ser Ala Gly Ile Thr Met Val Thr Ser  
 340 345 350  
 Leu Leu Ser Leu Leu Leu Glu Thr Pro Val Val Asn Asn Leu Gly Met  
 355 360 365  
 Thr Gly Glu Ile Thr Leu Thr Gly Arg Val Leu Gly Val Gly Gly Ile  
 370 375 380  
 Arg Glu Lys Leu Ile Ala Ala Arg Arg Ser Arg Leu Asn Ile Leu Ile  
 385 390 395 400  
 Phe Pro Glu Asp Asn Arg Arg Asp Tyr Glu Glu Leu Pro Ala Tyr Leu  
 405 410 415  
 Lys Thr Gly Leu Lys Ile His Phe Val Ser His Tyr Asp Asp Val Leu  
 420 425 430  
 Lys Val Ala Phe Pro Lys Leu Lys  
 435 440

&lt;210&gt;45

&lt;211&gt;424

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;45

Pro Ser Ile Arg Thr Ile Val Asp Ser Thr Thr Asn Ser Asp Ser Pro  
 1 5 10 15  
 Ile Leu Asp Pro Asn Pro Glu Asp Val Glu Lys Leu Leu Asp Glu Ser  
 20 25 30  
 Glu Glu Glu Ser Glu Asp Gln Ser Thr Glu Arg Leu Leu Pro Ser Glu  
 35 40 45  
 Leu Phe Ile Leu Pro Leu Asn Lys Arg Pro Phe Phe Pro Gly Met Ala  
 50 55 60  
 Ala Pro Ile Leu Ile Glu Ser Gly Pro Tyr Tyr Glu Val Leu Lys Val  
 65 70 75 80  
 Leu Ala Lys Ser Ser Gln Lys Tyr Ile Gly Leu Val Leu Thr Lys Lys  
 85 90 95  
 Glu Asn Ala Asp Ile Leu Lys Val Ser Phe Asn Gln Leu His Lys Thr

100 105 110  
 Gly Val Ala Ala Arg Ile Leu Arg Ile Met Pro Ile Glu Gly Gly Ser  
 115 120 125  
 Ala Gln Val Leu Leu Ser Ile Glu Glu Arg Ile Arg Ile Ile Glu Pro  
 130 135 140  
 Ile Lys Asp Lys Tyr Leu Lys Ala Arg Val Ser Tyr His Ala Asp Asn  
 145 150 155 160  
 Lys Glu Leu Thr Glu Glu Leu Lys Ala Tyr Ser Ile Ser Ile Val Ser  
 165 170 175  
 Val Ile Lys Asp Leu Leu Lys Leu Asn Pro Leu Phe Lys Glu Glu Leu  
 180 185 190  
 Gln Ile Phe Leu Gly His Ser Asp Phe Thr Glu Pro Gly Lys Leu Ala  
 195 200 205  
 Asp Phe Ser Val Ala Leu Thr Thr Ala Thr Arg Glu Glu Leu Gln Glu  
 210 215 220  
 Val Leu Glu Thr Thr Asn Met His Asp Arg Ile Asp Lys Ala Leu Ile  
 225 230 235 240  
 Leu Leu Lys Lys Glu Leu Asp Leu Ser Arg Leu Gln Ser Ser Ile Asn  
 245 250 255  
 Gln Lys Ile Glu Ala Thr Ile Thr Lys Ser Gln Lys Glu Phe Phe Leu  
 260 265 270  
 Lys Glu Gln Leu Lys Thr Xaa Lys Lys Glu Leu Gly Leu Glu Lys Glu  
 275 280 285  
 Asp Arg Ala Ile Asp Ile Glu Lys Phe Ser Glu Arg Leu Arg Lys Arg  
 290 295 300  
 His Val Pro Asp Tyr Ala Met Glu Val Ile Gln Asp Glu Ile Glu Lys  
 305 310 315 320  
 Leu Gln Thr Leu Glu Thr Ser Ser Ala Glu Tyr Thr Val Cys Arg Asn  
 325 330 335  
 Tyr Leu Asp Trp Leu Thr Ile Ile Pro Trp Gly Ile Gln Ser Lys Glu  
 340 345 350  
 Tyr His Asp Leu Lys Lys Ala Glu Ile Val Leu Asn Lys Asp His Tyr  
 355 360 365  
 Gly Leu Asp Glu Ile Lys Gln Arg Ile Leu Glu Leu Ile Ser Val Gly  
 370 375 380  
 Lys Leu Ser Lys Gly Leu Lys Gly Ser Ile Ile Cys Leu Val Gly Pro  
 385 390 395 400  
 Pro Gly Val Gly Lys Thr Ser Ile Gly Arg Thr Leu Leu Lys Ser Cys  
 405 410 415  
 Ile Glu Ser Ser Ser Val Ser Gln  
 420

&lt;210&gt;46

&lt;211&gt;122

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;46

Arg Met Phe Leu Gln Phe Phe His Pro Ile Val Phe Ser Asp Gln Ser  
 1 5 10 15  
 Leu Ser Phe Leu Pro Tyr Leu Gly Lys Ser Ser Gly Ile Ile Glu Lys  
 20 25 30  
 Cys Ser Asn Ile Val Glu His Tyr Leu His Leu Gly Gly Asp Thr Ser  
 35 40 45  
 Val Ile Ile Thr Gly Val Ser Gly Ala Thr Phe Leu Ser Val Asp His  
 50 55 60  
 Ala Leu Pro Ile Ser Lys Ser Glu Lys Ile Ile Lys Ile Leu Ser Tyr  
 65 70 75 80  
 Ile Leu Ile Leu Pro Leu Ile Leu Ala Leu Phe Ile Lys Ile Val Leu  
 85 90 95  
 Arg Ile Ile Leu Phe Xaa Lys Tyr Arg Gly Leu Ile Xaa Asp Val Lys  
 100 105 110  
 Lys Glu Asp Leu Glu Lys Asn Thr Tyr Thr  
 115 120

&lt;210&gt;47

&lt;211&gt;150

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;47

Ser Asn Lys Asn Glu Arg Asn Glu Asn Ile Tyr Cys Phe Asn Leu Phe  
 1 5 10 15  
 Arg Tyr Ile Arg Phe Phe Ala Ala Leu Asn Ile Arg Thr Asn Asp Gly  
 20 25 30  
 Leu Arg Phe Cys Tyr Ser Tyr Ile Leu Leu Arg Pro Met Leu Leu Asp  
 35 40 45  
 Ser Ser Leu Leu Arg Lys Gly Gly Gln Glu Leu Leu Lys Lys Phe Gln  
 50 55 60  
 Ile Lys Leu Arg Thr Thr Ser Ile Lys Ser Ser Leu Ile Ser Leu Arg  
 65 70 75 80  
 Gln Gln Leu Gly Lys Arg Glu Ala Thr Gln Ser Asp Ile Leu Tyr Gly  
 85 90 95  
 Thr Ser Arg Phe Gln Tyr Leu Asn Ser Phe Glu Ile Glu Asp Pro Arg  
 100 105 110  
 Ile Pro Pro Thr Met Ala Ala Gln Leu Gln Glu Ile Ile Trp Ser Arg  
 115 120 125  
 Ser Val Met Glu Leu Lys Ile Lys Phe Tyr Val Tyr Leu Asn Ser Glu  
 130 135 140  
 Arg Asn Lys Thr Lys Pro  
 145 150

&lt;210&gt;48

&lt;211&gt;392

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;48

Met Asp Tyr Tyr Ser Ile Leu Gly Ile Ser Lys Thr Ala Ser Ala Glu  
 1 5 10 15  
 Glu Ile Lys Lys Ala Tyr Arg Lys Leu Ala Val Lys Tyr His Pro Asp  
 20 25 30  
 Lys Asn Pro Gly Asp Ala Ala Ala Glu Lys Arg Phe Lys Glu Val Ser  
 35 40 45  
 Glu Ala Tyr Glu Val Leu Ser Asp Pro Gln Lys Arg Asp Ser Tyr Asp  
 50 55 60  
 Arg Phe Gly Lys Asp Gly Pro Phe Ala Gly Ala Gly Gly Phe Gly Gly  
 65 70 75 80  
 Ala Gly Gly Met Gly Asn Met Glu Asp Ala Leu Arg Thr Phe Met Gly  
 85 90 95  
 Ala Phe Gly Gly Glu Phe Gly Gly Gly Ser Phe Phe Asp Gly Leu Phe  
 100 105 110  
 Gly Gly Leu Gly Glu Ala Phe Gly Met Arg Ser Asp Pro Ala Gly Ala  
 115 120 125  
 Arg Gln Gly Ala Ser Lys Lys Val His Ile Asn Leu Thr Phe Glu Glu  
 130 135 140  
 Ala Ala His Gly Val Glu Lys Glu Leu Val Val Ser Gly Tyr Lys Ser  
 145 150 155 160  
 Cys Glu Thr Cys Ser Gly Gln Gly Ala Val Asn Pro Gln Gly Ile Lys  
 165 170 175  
 Ser Cys Glu Arg Cys Lys Gly Ser Gly Gln Val Val Gln Ser Arg Gly  
 180 185 190  
 Phe Phe Ser Met Ala Ser Thr Cys Pro Glu Cys Gly Gly Glu Gly Arg  
 195 200 205  
 Ile Ile Thr Asp Pro Cys Ser Ser Cys Arg Gly Gln Gly Arg Val Lys  
 210 215 220  
 Asp Lys Arg Ser Val His Val His Ile Pro Ala Gly Val Asp Ser Gly  
 225 230 235 240  
 Met Arg Leu Lys Met Glu Gly Tyr Gly Asp Ala Gly Gln Asn Gly Ala  
 245 250 255  
 Pro Ser Gly Asp Leu Tyr Val Phe Ile Asp Val Glu Ser His Pro Val  
 260 265 270  
 Phe Glu Arg Arg Gly Asp Asp Leu Ile Leu Glu Leu Pro Ile Gly Phe  
 275 280 285

Val Asp Ala Ala Leu Gly Met Lys Lys Glu Ile Pro Thr Leu Leu Lys  
 290 295 300  
 Thr Glu Gly Ser Cys Arg Leu Thr Val Pro Glu Gly Ile Gln Ser Gly  
 305 310 315 320  
 Thr Ile Leu Lys Val Arg Asn Gln Gly Phe Pro Asn Val His Gly Lys  
 325 330 335  
 Gly Arg Gly Asp Leu Leu Val Arg Ile Ser Val Glu Thr Pro Gln Asn  
 340 345 350  
 Leu Ser Glu Glu Gln Lys Glu Leu Leu Arg Thr Phe Ala Ser Thr Glu  
 355 360 365  
 Lys Ala Glu Asn Phe Pro Lys Lys Arg Ser Phe Leu Asp Lys Ile Lys  
 370 375 380  
 Gly Phe Phe Ser Asp Phe Thr Val  
 385 390

&lt;210&gt;49

&lt;211&gt;258

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;49

Met Gly Val Val Gln Asn Gln Val Ile Ser Ser Ile Arg Asp Val Leu  
 1 5 10 15  
 Lys Leu Val Trp Glu Leu Arg Phe Ala Glu His Lys Met Leu Leu Leu  
 20 25 30  
 Ser Arg Gln Ser Gly Ser Gly Gly Thr Phe Gln Leu Ser Cys Ala Gly  
 35 40 45  
 His Glu Leu Ala Gly Val Leu Ala Gly Lys Ser Leu Ile Pro Gly Lys  
 50 55 60  
 Asp Trp Ser Phe Pro Tyr Tyr Arg Asp Gln Gly Phe Pro Ile Gly Leu  
 65 70 75 80  
 Gly Cys Asp Leu Ser Glu Ile Phe Ala Ser Phe Leu Ala Arg Thr Thr  
 85 90 95  
 Pro Asn His Ser Ser Ala Arg Met Met Pro Tyr His Tyr Ser His Lys  
 100 105 110  
 Lys Leu Arg Ile Cys Cys Gln Ser Val Val Gly Thr Gln Phe Leu  
 115 120 125  
 Gln Ala Ala Gly Arg Ala Trp Ala Val Lys His Ser Ser Ala Asp Glu  
 130 135 140  
 Val Val Tyr Val Ser Gly Gly Asp Gly Ala Thr Ser Gln Gly Glu Phe  
 145 150 155 160  
 His Glu Met Leu Asn Phe Val Ala Leu His Gln Leu Pro Leu Ile Thr  
 165 170 175  
 Val Ile Gln Asn Asn His Trp Ala Ile Ser Val Pro Phe Glu Asp Gln  
 180 185 190  
 Cys Gly Ala Asp Leu Ala Ser Leu Gly Arg Cys His Gln Gly Leu Ala  
 195 200 205  
 Val Tyr Glu Val Asp Gly Gly Asn Tyr Thr Ser Leu Thr Glu Thr Phe  
 210 215 220  
 Ser His Ala Val Asp Gln Ala Arg Gln His Ser Val Pro Ala Leu Ile  
 225 230 235 240  
 Leu Ile Asp Val Val Arg Leu Ser Ser His Ser Asn Ser Asp Asn Gln  
 245 250 255

Glu Lys

&lt;210&gt;50

&lt;211&gt;410

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;50

Met Asp Lys Asp Pro Leu Ile Leu Leu Glu Lys Glu Ala Ile Asn Val  
 1 5 10 15  
 Phe Gly Leu Ser Pro Phe Glu Ile Glu Glu Ile Lys Ala Glu Ala Gln  
 20 25 30  
 Glu Glu Val Arg Lys Ser Cys Glu Ile Ala Glu Ala Leu Pro Phe Pro  
 35 40 45

Ser Lys Gly Ser Thr Ser His Glu Val Phe Ser Pro Tyr Thr Glu Thr  
 50 55 60  
 Leu Ile Asp Tyr Glu Asn Ser Glu Ser Ala Gln Asn Leu Arg Asn Ser  
 65 70 75 80  
 Glu Pro Lys Val Met Arg Asp Ala Ile Ser Glu Ala Leu Val Glu Glu  
 85 90 95  
 Met Thr Arg Asp Ser Gly Val Ile Val Phe Gly Glu Asp Val Ala Gly  
 100 105 110  
 Asp Lys Gly Gly Val Phe Gly Val Thr Arg Asn Leu Thr Glu Lys Phe  
 115 120 125  
 Gly Pro Gln Arg Cys Phe Asn Ser Pro Leu Ala Glu Ala Thr Ile Ile  
 130 135 140  
 Gly Thr Ala Ile Gly Met Ala Leu Asp Gly Ile His Lys Pro Val Val  
 145 150 155 160  
 Glu Ile Gln Phe Ala Asp Tyr Ile Trp Pro Gly Ile Asn Gln Leu Phe  
 165 170 175  
 Ser Glu Ala Ser Ser Ile Tyr Tyr Arg Ser Ala Gly Glu Trp Glu Val  
 180 185 190  
 Pro Leu Val Ile Arg Ala Pro Ser Gly Gly Tyr Ile Gln Gly Gly Pro  
 195 200 205  
 Tyr His Ser Gln Ser Ile Glu Gly Phe Leu Ala His Cys Pro Gly Ile  
 210 215 220  
 Lys Val Ala Tyr Pro Ser Asn Ala Ala Asp Ala Lys Ala Leu Leu Lys  
 225 230 235 240  
 Ala Ala Ile Arg Asp Pro Asn Pro Val Val Phe Leu Glu His Lys Ala  
 245 250 255  
 Leu Tyr Gln Arg Arg Ile Phe Ser Ala Cys Pro Val Phe Ser His Asp  
 260 265 270  
 Tyr Val Leu Pro Phe Arg Lys Ala Ala Ile Val His Pro Gly Lys Asp  
 275 280 285  
 Leu Thr Ile Val Ser Trp Gly Met Pro Leu Val Leu Ser Leu Glu Val  
 290 295 300  
 Ala Gln Glu Leu Ala Ser Arg Gly Ile Ser Ile Glu Val Ile Asp Leu  
 305 310 315 320  
 Arg Thr Met Val Pro Cys Asp Phe Ala Thr Val Leu Lys Ser Leu Glu  
 325 330 335  
 Lys Thr Gly Arg Leu Leu Val Ile His Glu Ala Ser Glu Phe Cys Gly  
 340 345 350  
 Phe Gly Ser Glu Leu Val Ala Thr Met Ser Glu Gln Gly Tyr Ala Tyr  
 355 360 365  
 Leu Asp Ala Pro Ile Arg Arg Leu Gly Gly Leu His Ala Pro Val Pro  
 370 375 380  
 Tyr Ser Lys Val Leu Glu Asn Glu Val Leu Pro His Lys Glu Ser Ile  
 385 390 395 400  
 Leu Gln Ala Ala Lys Ser Leu Ala Glu Phe  
 405 410

&lt;210&gt;51

&lt;211&gt;429

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;51

Val Asn Phe Leu Leu Pro Thr Thr Cys Arg Gly Ile Leu Met Ala Glu  
 1 5 10 15  
 Ile Ser Thr Pro Ser Leu Pro Asp Ser Ser Ile Val Ser Gln Lys Thr  
 20 25 30  
 Pro Pro Val Pro Asp Pro Asp Ser Ser Pro Asp His Ile Pro Thr Ile  
 35 40 45  
 Pro Thr Gln Ala Pro Phe Lys Pro Gln Arg Lys Lys Glu Thr Pro Ser  
 50 55 60  
 Ser Ile Val Asn Ala Ile Ala Phe Ala Ile Leu Ala Phe Leu Ser Cys  
 65 70 75 80  
 Leu Gly Gly Val Phe Ala Ile Cys Leu Gly Cys Ser Leu Glu Ile Thr  
 85 90 95  
 Met Pro Leu Phe Ile Leu Thr Ala Val Phe Ile Ala Phe Thr Leu Leu



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Thr | Leu | Glu | Glu | Asp | Ala | Gly | Ser | Ser | Leu | Lys | Pro | Leu | Pro | Lys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Thr | Phe | Pro | Cys | Ala | Thr | Ala | Leu | Tyr | Ile | Thr | His | Arg | Arg | Glu | Arg |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Lys | Ser | Glu | His | Gln | Met | Trp | Asn | Arg | Cys | Gln | Val | Phe | Ser | Ser | Phe |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Phe | Phe | Arg | Tyr | Pro | Ile | Ser | Ser | Trp | Leu | Ile | Arg | Leu | Arg | Ala | Ser |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Cys | Glu | Cys | Phe | Gln | Gln | Arg | His | Pro | Ile | Phe | Leu | Cys | Gly | Leu | Tyr |
| 65  |     |     |     | 70  |     |     |     |     |     | 75  |     |     |     | 80  |     |
| Trp | Leu | Ala | Gly | Ile | Thr | Ser | Arg | Gly | Tyr | Pro | Glu | Cys | Ser | Ala | Leu |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ile | Leu | Ile | Phe | Leu | Gly | Met | Phe | Leu | Pro | Arg | Asn | Pro | Lys | Gln | Trp |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Leu | Pro | Leu | Ala | Ser | Ala | Trp | Ile | Ile | Ser | Leu | Met | Leu | Thr | Pro | Ala |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Pro | Phe | Leu | His | Asp | Gly | Pro | Ile | Ser | Gly | Thr | Phe | Val | Ile | His | His |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |

Ala Gly Gly Gln Gly Xaa Thr Thr Glu Lys Leu Phe Val Phe Arg Arg  
 145 150 155 160  
 Pro Val Gly Lys Arg Ala His His Leu Xaa Cys Gln Ile Leu Ser Glu  
 165 170 175  
 Ser Arg Leu Glu Leu Lys Lys Val Tyr Glu Leu Glu Gly Thr Leu His  
 180 185 190  
 His Thr Ser Gln Ile Val Phe Lys Ser Asn Ala Cys Tyr Lys Glu Ile  
 195 200 205  
 Pro Arg Ser Arg Phe Tyr Ile Met Lys Glu Lys Cys Arg Glu Ser Ser  
 210 215 220  
 Cys His Phe Leu Asn His Arg Phe Pro Ser Ser Glu Val Gly Pro Phe  
 225 230 235 240  
 Ala Ser Ser Leu Leu Leu Gly Thr Pro Leu Pro Gln Asn Leu Arg Asp  
 245 250 255  
 Leu Phe Arg Gln Lys Gly Leu Ser His Leu Phe Ala Ile Ser Gly Trp  
 260 265 270  
 His Phe Ser Leu Cys Ala Thr Thr Leu Trp Met Leu Cys Ala Leu Leu  
 275 280 285  
 Pro Leu Lys Ile Lys Lys Ile Leu Ser Phe Ile Val Leu Thr Ser Leu  
 290 295 300  
 Ser Cys Ile Phe Pro Met Ser Leu Ser Val Trp Arg Ser Trp Ile Ser  
 305 310 315 320  
 Val Thr Leu Leu Cys Phe Ser Trp Cys Phe Ser Gly Ser Cys Ser Gly  
 325 330 335  
 Leu Asn Arg Leu Gly Ala Gly Phe Ile Leu Cys Ser Ile Phe Phe Ser  
 340 345 350  
 Arg Phe Ser Pro Thr Phe Val Leu Ser Phe Leu Ala Thr Leu Gly Ile  
 355 360 365  
 Leu Leu Phe Phe Pro Lys Ile Phe Ser Phe Leu Tyr Thr Pro Trp Thr  
 370 375 380  
 Gln Phe Leu Ser Pro Phe Trp Leu Tyr Pro Ile Arg Tyr Leu Ala Met  
 385 390 395 400  
 Thr Leu Ala Ile Ser Leu Ser Ala Gln Leu Phe Ile Val Leu Pro Ile  
 405 410 415  
 Met Gln Tyr Phe Gly Ser Leu Pro Leu Glu Gly Leu Leu Tyr Asn Leu  
 420 425 430  
 Ile Val Pro Phe Thr Ile Leu Pro Ile Ile Val Phe Leu Ile Ala Thr  
 435 440 445  
 Ile Ile Leu Pro Cys Cys Ser Pro Ile Thr Glu Ala Leu Ile Gln Gly  
 450 455 460  
 Phe Leu Ser His Pro Trp Leu His Asn Pro Asn Ile Leu Lys Thr Leu  
 465 470 475 480  
 Ser Phe Ala Pro Val Pro Pro Trp Met Leu Thr Leu Ala Ser Leu Ile  
 485 490 495  
 Leu Phe Phe Ile Gly Ile Leu Arg Thr Asn Val Ser Pro Tyr Ala Ser  
 500 505 510  
 Thr Ser Ala Thr Ser Tyr Arg Phe Ile Glu Thr Leu  
 515 520

&lt;210&gt;53

&lt;211&gt;276

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;53

Ala Lys Ser Leu Trp Asp Ser Glu Arg Lys Lys Met Lys Lys Pro Asp  
 1 5 10 15  
 Asn Asp Ser Thr Phe Asp Val Arg Ser Phe Phe Pro Phe Asp Val Leu  
 20 25 30  
 Cys Ile Glu Gln Leu Arg Lys Glu Met Ser Trp Glu Val Val Ser Ala  
 35 40 45  
 Lys Ile Pro Arg Leu Pro Arg Gly Trp Tyr Glu Leu Met Gly Leu Ser  
 50 55 60  
 Lys Glu Asp Arg Ile Asp Phe Cys Leu Asp Phe Trp Cys Ser Val Leu  
 65 70 75 80  
 Gly Ile Glu His Lys Glu Ser Pro Ser Ile Cys Arg Phe Phe Ser Leu

85 90 95  
 Leu Glu Thr Ile Glu Val Tyr Ile Tyr Arg Leu Glu Lys Glu Pro Tyr  
 100 105 110  
 Gln Leu Lys Met Phe Tyr Val Phe Arg Asp Gly Arg Cys Gly Phe Gln  
 115 120 125  
 Gly Glu Pro Pro Leu Leu Asp Phe Leu Gly His His Arg Leu Pro Pro  
 130 135 140  
 Leu Gly Asp Arg His Tyr Glu Lys Phe Phe Ser Ile His Asn Gly Phe  
 145 150 155 160  
 Gly Lys Trp Glu Asp Glu Gly Ile Phe Pro Met Arg Ser Leu Ala Lys  
 165 170 175  
 Val Gln Gln Lys Leu Arg Gln Gln Leu Val Val Met Asn Lys Met Gln  
 180 185 190  
 Ala Glu Asp Asn Cys Tyr Ser Leu Gly Ile Phe Pro Phe Tyr Gly Tyr  
 195 200 205  
 Glu Glu Pro Phe Ala Tyr Gln Ser Phe Phe Phe Asp Pro Glu Ile Arg  
 210 215 220  
 Arg Asp Leu Pro Ser Pro Asn Val Leu Leu Asn Glu Glu Ser Leu Glu  
 225 230 235 240  
 His Arg Ser Leu Glu Thr Ile Glu Leu Leu His Leu Ser Lys Ser Tyr  
 245 250 255  
 Tyr Pro Ser Phe Leu Ser Trp Leu Glu Asn Tyr Leu His Ser Glu Glu  
 260 265 270  
 Val Tyr Asn Glu  
 275

&lt;210&gt;54

&lt;211&gt;113

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;54

Val Arg Arg Cys Ile Met Asn Glu Pro Thr Arg Thr Tyr Leu Glu Ser  
 1 5 10 15  
 Glu Lys Asp Thr Gln Asp Gln Ile Glu Glu Leu Gln Ala Thr Cys Ile  
 20 25 30  
 Val Lys Asn Ala Ala Gly Ile His Val Arg Pro Ala Gly Val Ile Val  
 35 40 45  
 Arg Leu Phe Asp Gly Glu Pro Cys Asp Val His Phe Thr Tyr Ala Gly  
 50 55 60  
 Lys Thr Ile Asn Ala Lys Ser Ile Met Ser Ile Leu Met Leu Gly Ala  
 65 70 75 80  
 Pro Gln Gly Gly Glu Ile Leu Val Thr Ile Arg Ser Lys Glu Ala His  
 85 90 95  
 Arg Ile Leu Gln Lys Ile Gln Asp Ala Phe Ser Ser Gly Phe Gly Glu  
 100 105 110  
 Leu

&lt;210&gt;55

&lt;211&gt;420

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;55

Met Asp Thr Gln Ser Ser Ile Gly Asn Glu Glu Trp Arg Ile Ala Gly  
 1 5 10 15  
 Thr Ser Val Val Ser Gly Met Ala Leu Gly Lys Val Phe Phe Leu Gly  
 20 25 30  
 Thr Ser Pro Leu His Val Arg Glu Leu Thr Leu Pro Gln Glu Glu Val  
 35 40 45  
 Glu His Glu Ile His Arg Tyr Lys Ala Leu Asn Arg Ser Lys Ser  
 50 55 60  
 Asp Ile Val Ala Leu Glu Gln Glu Val Thr Gly Gln Gln Gly Leu Gln  
 65 70 75 80  
 Glu Val Ser Ser Ile Leu Gln Ala His Leu Glu Ile Met Lys Asp Pro  
 85 90 95  
 Leu Leu Thr Glu Glu Val Val Asn Thr Ile Arg Lys Asp Arg Lys Asn

100 105 110  
 Ala Glu Tyr Val Phe Ser Ser Val Met Gly Lys Ile Glu Glu Ser Leu  
 115 120 125  
 Thr Ala Val Arg Gly Met Pro Ser Val Val Asp Arg Val Gln Asp Ile  
 130 135 140  
 His Asp Ile Ser Asn Arg Val Ile Gly His Leu Cys Cys Gln His Lys  
 145 150 155 160  
 Ser Ser Leu Gly Glu Ser Asp Gln Asn Leu Ile Ile Phe Ser Glu Glu  
 165 170 175  
 Leu Thr Pro Ser Glu Val Ala Ser Ala Asn Ser Ala Tyr Ile Arg Gly  
 180 185 190  
 Phe Val Ser Leu Val Gly Ala Ala Thr Ser His Thr Ala Ile Val Ser  
 195 200 205  
 Arg Ala Lys Ser Ile Pro Tyr Leu Ala Asn Ile Ser Glu Glu Leu Trp  
 210 215 220  
 Asn Ile Ala Lys Arg Tyr Asn Gly Lys Leu Val Leu Ile Asp Gly Tyr  
 225 230 235 240  
 Arg Gly Glu Leu Ile Phe Asn Pro Lys Pro Ala Thr Leu Gln Ser Cys  
 245 250 255  
 Tyr Lys Lys Glu Leu Ser Val Val Ala His Thr Ser Gln Arg Leu Val  
 260 265 270  
 Arg Lys Ser Leu His Pro Ile Val Ser Ser His Ala Gly Ser Asp Lys  
 275 280 285  
 Asp Val Glu Asp Leu Leu Glu Asn Phe Pro Gln Thr Ser Ile Gly Leu  
 290 295 300  
 Phe Arg Ser Glu Phe Leu Ala Val Ile Leu Gly Arg Leu Pro Thr Leu  
 305 310 315 320  
 Arg Glu Gln Val Asp Leu Tyr Glu Lys Leu Ala Arg Phe Pro Gly Asp  
 325 330 335  
 Ser Pro Ser Val Leu Arg Leu Phe Asp Phe Gly Glu Asp Lys Pro Cys  
 340 345 350  
 Pro Gly Ile Lys Asn Lys Lys Glu Arg Ser Ile Arg Trp Leu Leu Asp  
 355 360 365  
 Tyr Ser Val Ile Leu Glu Asp Gln Leu Gln Ala Ile Ala Lys Ala Ser  
 370 375 380  
 Leu Gln Gly Ser Ile Lys Val Leu Ile Pro Gly Val Ser Asp Val Ser  
 385 390 395 400  
 Glu Ile Ile Glu Val Lys Lys Lys Trp Glu Thr Ile Gln Thr Arg Phe  
 405 410 415  
 Pro Lys Arg Pro  
 420

&lt;210&gt;56

&lt;211&gt;102

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;56

Thr Ser Lys Cys Asn Phe Ala Pro Ser Ser Asp Pro His Asp Ser Pro  
 1 5 10 15  
 Cys Thr Ser Ser Cys Glu Gln Asn Gln Val Pro Val Ser Ile Cys Gly  
 20 25 30  
 Glu Ala Ala Gly Gln Leu Ser Leu Thr Pro Leu Phe Ile Gly Leu Gly  
 35 40 45  
 Val Gln Glu Leu Ser Val Ala Met Pro Val Ile Asn Arg Leu Arg Asn  
 50 55 60  
 His Ile Ala Leu Leu Glu Leu Asn Ser Cys Leu Glu Ile Thr Glu Ala  
 65 70 75 80  
 Leu Leu Gln Ala Lys Thr Cys Ser Glu Val Glu Glu Leu Leu Asn Arg  
 85 90 95  
 Asn Asn Lys Ile Thr Ser  
 100

&lt;210&gt;57

&lt;211&gt;98

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;57

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Ile Ser Met Gly Ser Gly Tyr Ala Lys Lys Lys Lys Glu Ala Lys Ile
  1           5           10           15
Met Glu Gln Gln Phe Leu Glu Met Glu Ala Ser Leu Leu Glu Lys Arg
          20           25           30
Tyr Glu Gly Gln Ala Gly Asn Gly Leu Val Ser Val Val Ile Asn Gly
          35           40           45
Lys Cys Asp Leu Ile Ser Val Lys Val Gln Pro Thr Cys Leu Asp Pro
          50           55           60
Glu Asp Pro Glu Val Ile Glu Asp Leu Phe Arg Ala Ala Phe Lys Leu
          65           70           75           80
Ala Lys Glu Gln Met Asp Gln Glu Met Ser Leu Met Arg Ser Thr Met
          85           90           95
Pro Phe

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&lt;210&gt;58

&lt;211&gt;271

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;58

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Val Val Val Lys Lys Cys Ile Phe Lys Gly Phe Leu Lys Lys Arg Ser
  1           5           10           15
Trp Arg Ser Tyr Arg Leu Trp Leu Lys Met Thr Ile Leu Arg Arg Arg
          20           25           30
Lys Lys His Trp Arg Arg Ser Pro Val Gln His Lys Glu Ala Cys Val
          35           40           45
Met Gln Asn Leu Phe Met Thr Tyr Val Ile Ser Leu Phe Pro Lys Ser
          50           55           60
Leu Ser Pro Asp Thr Val Ala Gln Ala Leu Gly Phe Ala Ser Gln Asp
          65           70           75           80
Ser Leu Arg Thr Leu Asp Asn Ala Ile Leu Gln Arg Asp Tyr Ala Thr
          85           90           95
Ala Leu Gly Ile Val Thr Asp Phe Leu Asn Ser Gly Val Ala Pro Val
          100          105          110
Thr Phe Leu His Asp Leu Thr Leu Phe Tyr Arg Asn Leu Leu Thr
          115          120          125
Asn Ser Thr Thr Ser Lys Phe Ser Ser Gln Tyr Lys Thr Glu Gln Leu
          130          135          140
Leu Glu Ile Ile Asp Phe Leu Gly Glu Ser Ala Lys His Leu Gln Asn
          145          150          155          160
Thr Ile Phe Glu Gln Thr Phe Leu Glu Thr Val Ile Ile His Ile Ile
          165          170          175
Arg Ile Tyr Gln Arg Pro Val Leu Ser Glu Leu Ile Ser Ser Ile Lys
          180          185          190
Ser Arg Gln Phe Glu Gly Leu Arg Asn Ile Lys Glu Pro Thr Leu Thr
          195          200          205
Gln Gln Val Ser Ala Pro Gln Pro Gln Pro Thr Tyr Lys Glu Gln Ser
          210          215          220
Phe Leu Glu Lys Lys Asn Gln Pro Ala Ala Glu Gly Lys Ile Ile Ser
          225          230          235          240
Val Glu Val Lys Ser Ser Ala Ser Ile Lys Ser Ala Ala Val Asp Thr
          245          250          255
Leu Leu Gln Phe Ala Val Val Glu Phe Ser Gly Ile Leu Arg Gln
          260          265          270

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&lt;210&gt;59

&lt;211&gt;233

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;59

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Met Thr Leu Gln Pro Tyr Gln Ala Ser Ser Arg Lys Tyr Arg Pro Gln
  1           5           10           15
Ile Phe Arg Glu Ile Leu Gly Gln Ser Ser Val Val Ala Val Leu Lys
          20           25           30
Asn Ala Leu Val Phe Asn Arg Ala Ala His Ala Tyr Leu Phe Ser Gly

```

35 40 45  
 Ile Arg Gly Thr Gly Lys Thr Thr Leu Ala Arg Ile Leu Ala Lys Ala  
 50 55 60  
 Leu Asn Cys Val His Leu Ser Glu Asp Gly Glu Pro Cys Asn Gln Cys  
 65 70 75 80  
 Phe Ser Cys Lys Glu Ile Ala Ser Gly Ser Ser Leu Asp Val Leu Glu  
 85 90 95  
 Ile Asp Gly Ala Ser His Arg Gly Ile Glu Asp Ile Arg Gln Ile Asn  
 100 105 110  
 Glu Thr Val Leu Phe Thr Pro Val Lys Ala Lys Phe Lys Ile Tyr Ile  
 115 120 125  
 Ile Asp Glu Val His Met Leu Thr Lys Glu Ala Phe Asn Ala Leu Leu  
 130 135 140  
 Lys Thr Leu Glu Glu Pro Pro Gln His Val Lys Phe Phe Phe Ala Thr  
 145 150 155 160  
 Thr Glu Ile His Lys Ile Pro Gly Thr Ile Leu Ser Arg Cys Gln Lys  
 165 170 175  
 Met His Leu Gln Arg Ile Pro Glu Lys Thr Ile Leu Glu Lys Leu Ser  
 180 185 190  
 Leu Met Ala Gln Asp Asp His Ile Glu Ala Ser Gln Glu Ala Leu Ala  
 195 200 205  
 Pro Ile Ala Arg Ala Ala Gln Gly Ser Leu Arg Asp Ala Glu Ser Leu  
 210 215 220  
 Tyr Asp Leu Arg Asn Ile Phe Ile Ser  
 225 230  
 <210>60  
 <211>346  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>60  
 Cys Lys Tyr Leu Tyr His His Ser Tyr Pro Pro Pro Gln His Ser Val  
 1 5 10 15  
 Gly Ser Ile Ser Ser Arg Tyr Lys Leu Arg Val Leu Ala Ile Thr Phe  
 20 25 30  
 Leu Val Leu Gly Val Leu Leu Leu Ile Ser Gly Ala Leu Phe Leu Thr  
 35 40 45  
 Leu Gly Ile Pro Gly Leu Thr Ala Gly Val Ser Phe Gly Leu Gly Ile  
 50 55 60  
 Gly Leu Ser Ala Leu Gly Gly Val Leu Val Val Ser Gly Leu Leu Cys  
 65 70 75 80  
 Leu Leu Val Lys Arg Glu Val Ser Lys Val Cys Pro Glu Glu Ile Pro  
 85 90 95  
 Ala Val Gln Pro Glu Glu Thr Pro Glu Gly Val Pro Val Thr Pro Phe  
 100 105 110  
 Glu Lys Pro Ala Leu Asp Glu Ala Gln Lys Glu Gln Lys Thr Gln Lys  
 115 120 125  
 Ile Leu Asp Gln Leu Pro Gln Glu Leu Asp Gln Leu Asp Arg Tyr Ile  
 130 135 140  
 Gln Glu Val Phe Ala Cys Leu Gly Pro Leu Lys Asp Leu Lys Tyr Glu  
 145 150 155 160  
 Asp Gln Gly Phe Leu Gln Asp Val Lys Glu Glu Phe Gln Val Phe Asp  
 165 170 175  
 Phe Val Gln Lys Asp Met Ile Ala Glu Phe Val Glu Leu Gln Gln Ile  
 180 185 190  
 Leu Cys Gln Glu Gly Arg Leu Leu Glu Phe Val Ile Asn Gln Thr Arg  
 195 200 205  
 Tyr Ile Gly Arg Asp Leu Phe Lys Arg Glu Asp Ser Leu Tyr Lys Leu  
 210 215 220  
 Trp Glu Trp Leu Gly Tyr Leu Pro Ser Gly Asp Val Arg Gly Glu Arg  
 225 230 235 240  
 Leu Lys Lys Ser Ala Arg Glu Val Val Asp Arg Phe Met Arg Thr Thr  
 245 250 255  
 Cys Asn Ile Arg Lys Ile Ala Met Thr Phe Asp Arg His Val Tyr Ser  
 260 265 270

Val Ala Lys Thr Ala Phe Glu Lys Ala Phe Gly Ala Leu Glu Thr Cys  
 275 280 285  
 Val Tyr Glu Ser Met Arg Glu Ser Tyr Arg Glu Ala Phe Cys Glu Tyr  
 290 295 300  
 Glu Lys Ala Lys Leu Leu Gly Asp Glu Glu Lys Ser Ala His Ala Glu  
 305 310 315 320  
 Gln Arg Phe Gln Asp Ile Lys Asn Arg Trp Glu Asp Val Lys Asp Ala  
 325 330 335  
 Phe Phe Trp Val Lys Glu Asp Gly Glu Asp  
 340 345

&lt;210&gt;61

&lt;211&gt;145

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;61

Lys Lys Met Gly Lys Ile Glu Ile Asp Asp Ala Ile Gly Asn Ser Cys  
 1 5 10 15  
 Lys Trp Ser Glu Arg Tyr Glu Glu His Arg Ile Thr Arg Ala Arg Trp  
 20 25 30  
 Tyr Lys Val Ala Glu His Gln Leu Phe Asn Ala Thr Met Arg Val Lys  
 35 40 45  
 Asp Ser Leu Arg Glu His Asn Glu Ala Arg Val Ala Phe Glu Lys Glu  
 50 55 60  
 Arg Ser Lys Glu Asn Gln Arg Gln Val Gln Lys Lys Lys Glu Lys Arg  
 65 70 75 80  
 Leu Arg Asp Leu Lys Glu Leu His Asp Gln Glu Leu Pro Arg Ala Gln  
 85 90 95  
 Glu Arg Leu Arg Glu Leu Gln Ala Leu Tyr Pro Glu Ile Ala Val Ser  
 100 105 110  
 Val Val Glu Ala Arg Arg Glu Val Ala Ser Asp Leu Glu Lys Ala His  
 115 120 125  
 Glu Ser Ile Asp Lys His Tyr Gln Ser Cys Val Arg Glu Gln Glu Leu  
 130 135 140

Tyr

145

&lt;210&gt;62

&lt;211&gt;279

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;62

Glu Glu Glu Glu Lys Gln Glu Ala Glu Phe Arg Glu Asn Gly Thr Lys  
 1 5 10 15  
 Ile Arg Ser Met Glu Glu Val Ser Glu Tyr Leu Gln Gln Val Glu Asn  
 20 25 30  
 Gln Leu Glu Ser Cys Ser Lys Arg Leu Thr Lys Met Glu Thr Phe Ala  
 35 40 45  
 Leu Gly Val Arg Leu Glu Ala Lys Glu Glu Ile Glu Ser Ile Ile Leu  
 50 55 60  
 Ser Asp Val Val Asn Arg Phe Glu Val Leu Cys Arg Asp Ile Glu Asp  
 65 70 75 80  
 Met Leu Ser Arg Val Glu Glu Ile Glu Arg Met Leu Arg Met Ala Glu  
 85 90 95  
 Leu Pro Val Leu Pro Ile Lys Glu Ala Leu Thr Lys Ala Phe Val Gln  
 100 105 110  
 His Asn Ser Cys Lys Glu Lys Leu Thr Lys Val Glu Pro Tyr Phe Lys  
 115 120 125  
 Glu Ser Pro Ala Tyr Leu Thr Ser Glu Asn Arg Leu Gln Ser Leu Asn  
 130 135 140  
 Gln Thr Leu Gln Arg Ala Tyr Lys Glu Ser Gln Lys Val Ser Gly Leu  
 145 150 155 160  
 Glu Ser Glu Val Arg Ala Cys Arg Glu Gln Leu Lys Asp Gln Val Arg  
 165 170 175  
 Gln Phe Glu Thr Gln Gly Val Ser Leu Ile Lys Glu Glu Ile Leu Phe  
 180 185 190

Val Thr Ser Thr Phe Arg Thr Lys Phe Ser Tyr His Ser Phe Arg Leu  
 195 200 205  
 His Val Pro Cys Met Arg Leu Tyr Glu Glu Tyr Tyr Asp Asp Ile Asp  
 210 215 220  
 Leu Glu Arg Thr Arg Ala Arg Trp Met Ala Met Ser Glu Arg Tyr Arg  
 225 230 235 240  
 Asp Ala Phe Gln Ala Phe Gln Glu Met Leu Lys Glu Gly Leu Val Glu  
 245 250 255  
 Glu Ala Gln Ala Leu Arg Glu Thr Glu Tyr Trp Leu Tyr Arg Glu Glu  
 260 265 270  
 Arg Lys Ser Lys Lys Lys His  
 275  
 <210>63  
 <211>644  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>63  
 Cys Lys Tyr Leu Tyr His His Ser Tyr Pro Pro Pro Pro Pro Pro  
 1 5 10 15  
 Asp Gln Ser Val Gly Ala Ser Phe Cys Leu Ser Lys Phe Arg Val Leu  
 20 25 30  
 Ala Ile Thr Phe Leu Val Leu Gly Val Leu Leu Leu Ile Ser Gly Ala  
 35 40 45  
 Leu Phe Leu Thr Leu Gly Ile Ser Gly Val Ser Leu Gly Val Gly Leu  
 50 55 60  
 Gly Leu Ser Ala Leu Gly Ser Val Leu Val Ile Ser Gly Phe Leu Leu  
 65 70 75 80  
 Leu Leu Glu Arg Arg Glu Val Ser Gly Val Gly Leu Glu Gly Ile Pro  
 85 90 95  
 Thr Gly Ile Pro Val Gly Pro Ser Ala Glu Pro Ser Ser Glu Glu Ile  
 100 105 110  
 Gln Lys Lys Gln Lys Ala Lys Gln Ile Leu Asp Gln Leu Pro Gln Glu  
 115 120 125  
 Leu Asp Gln Leu Asp Thr Asp Ile Gln His Val Leu Ser Cys Leu Gly  
 130 135 140  
 Lys Leu Lys Asp Leu Lys Cys Lys Asp Arg Gly Leu Leu Lys Asp Ala  
 145 150 155 160  
 Lys Glu Lys Leu Gln Val Phe Asp Phe Val Trp Lys Asp Met Met Met  
 165 170 175  
 Glu Phe Val Glu Leu Gln Gln Val Met Asp Gln Glu Ser Arg Tyr Leu  
 180 185 190  
 Glu Gly Leu Ile His Glu Val Gln Ser Ile Ala His Lys Leu Phe Val  
 195 200 205  
 Asp Asp Val Asn Ile Arg Ser His Leu Gly Glu Ser Cys Gly Tyr Leu  
 210 215 220  
 Pro Ser Glu Asp Val Arg Gly Glu Leu Leu Lys Arg Phe Ala Lys Glu  
 225 230 235 240  
 Val Val Ala Arg Phe Met Lys Val Thr Arg Asp Ile Arg Lys Ile Ala  
 245 250 255  
 Met Ala Phe Asn Lys Asn Ala Tyr Gly Ala Ala Lys Asn Ala Phe Asp  
 260 265 270  
 Lys Ala Phe Gly Ser Leu Glu Thr Cys Leu Tyr Lys Ser Leu Thr Lys  
 275 280 285  
 Ser Tyr Arg Asp Thr Phe Cys Asp Tyr Lys Arg Ala Lys Ile Leu Pro  
 290 295 300  
 Asp Glu Asn Asn Ser Ala Arg Ala Glu Gln Arg Phe Arg Glu Val Lys  
 305 310 315 320  
 Asp His Trp Glu Asp Leu Asn Glu Thr Val Phe Trp Val Lys Glu Asp  
 325 330 335  
 Gly Arg Ile Asp Ile Glu Val Leu Thr Ala Val Gly Gly Trp Pro Asp  
 340 345 350  
 Arg Tyr Pro Glu His Leu Ile Leu Glu Lys Arg Lys Asp Lys Val Met  
 355 360 365  
 Ser His Gln Leu Trp Glu Ala Thr Met Arg Val Lys Glu Ala Glu Val



370 375 380  
 Thr Tyr Ser Val Ala Arg Val Ala Phe Glu Lys Asp Gly Ser Gln Gln  
 385 390 395 400  
 Asn Gln Lys Lys Phe Gln Glu Lys Thr Lys Glu Arg Leu Arg Cys Leu  
 405 410 415  
 Lys Asp Leu Arg Asp Gln Glu Cys His Arg Ala Gln Glu Arg Leu Glu  
 420 425 430  
 Lys Leu Thr Ala Leu Tyr Pro Glu Val Ser Val Ser Val Val Glu Thr  
 435 440 445  
 Glu Arg Glu Arg Lys Phe Asn Leu Glu Lys Ala Tyr Gly Asn Leu Glu  
 450 455 460  
 Glu Arg Tyr Gln Ser Val Val Gln Asp Gln Glu Asp Tyr Trp Thr Glu  
 465 470 475 480  
 Gln Lys Asn Arg Glu Ala Glu Phe Arg Ala Lys Gly Thr Lys Val Arg  
 485 490 495  
 Ser Met Glu Glu Val Ala Glu His Leu Gln Ile Leu Glu Asn Leu Leu  
 500 505 510  
 Glu Asp Cys Tyr Lys Arg Leu Ser Lys Ala Glu Thr Phe Ala Leu Gly  
 515 520 525  
 Val Glu Arg Glu Ala Thr Glu Glu Ile Glu Tyr Thr Ile Leu Ser Asp  
 530 535 540  
 Ala Ala Asn Arg Leu Lys Val Leu Cys Glu Asp Ile Glu Asp Thr Leu  
 545 550 555 560  
 Pro Arg Val Glu Glu Ile Glu Met Met Leu Arg Met Ala Glu Arg Pro  
 565 570 575  
 Leu His Pro Ile Lys Gln Ala Phe Thr Lys Ala Phe Val Gln Tyr Asn  
 580 585 590  
 Arg Cys Lys Glu Arg Leu Ala Lys Val Glu Pro Tyr Tyr Lys Glu Ser  
 595 600 605  
 Pro Ala Tyr Val Asn Ser Glu Glu Arg Leu Gln Ser Leu Asp Gln Ala  
 610 615 620  
 Ser Gln Cys Ile Gln Arg Val Pro Lys Gly Phe Lys Phe Arg Asn Gly  
 625 630 635 640  
 Ser Met Tyr Ile

&lt;210&gt;64

&lt;211&gt;114

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;64

Ser Lys Ile Cys Phe Ala Phe Cys Phe Phe Cys Ile Ser Ser Glu Glu  
 1 5 10 15  
 Gly Ser Ala Glu Gly Pro Thr Gly Ile Pro Val Gly Ile Pro Ser Lys  
 20 25 30  
 Pro Thr Pro Glu Thr Ser Arg Leu Ser Lys Ser Asn Arg Asn Pro Glu  
 35 40 45  
 Ile Thr Ser Thr Leu Pro Asn Ala Glu Ser Pro Lys Pro Thr Pro Arg  
 50 55 60  
 Glu Thr Pro Glu Ile Pro Asn Val Arg Lys Arg Ala Pro Glu Ile Ser  
 65 70 75 80  
 Lys Ser Thr Pro Arg Thr Lys Lys Val Ile Ala Lys Thr Arg Asn Leu  
 85 90 95  
 Asp Arg Gln Lys Glu Ala Pro Thr Asp Trp Ser Gly Gly Gly Gly Gly  
 100 105 110  
 Gly Gly

&lt;210&gt;65

&lt;211&gt;167

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;65

Ile Ala Lys Ser Asp Cys Arg Val Trp Ile Arg Leu His Ser Ala Tyr  
 1 5 10 15  
 Lys Glu Ser Gln Lys Val Ser Ser Leu Glu Thr Glu Ala Cys Thr Tyr

20 25 30  
 Arg Glu Tyr Leu Arg Glu Gln Val Gln Gln Phe Glu Thr Gln Gly Val  
 35 40 45  
 Ser Leu Ile Lys Glu Glu Leu Leu Phe Leu Ser Ser Thr Leu Lys Ser  
 50 55 60  
 Lys Leu Ser Tyr Asp Pro Leu Ile Ala Asn Ile Pro Cys Met Lys Phe  
 65 70 75 80  
 Tyr Tyr Gln Tyr Tyr Asp Asp Ile Asp Lys Ala Arg Ala Gln Ser Arg  
 85 90 95  
 Trp Leu Glu Lys Ser Glu Arg Tyr Arg Asn Ala Lys Arg Arg Phe Gln  
 100 105 110  
 Glu Ile Val Lys Lys Gly Leu Phe Lys Glu Ala Lys Pro Leu Lys Lys  
 115 120 125  
 Glu Glu Tyr Arg Leu Leu Gln Glu Glu Arg Ser Asn Lys Glu Lys Arg  
 130 135 140  
 Leu Ile Tyr Asn Lys Met Ala Val Ala Arg Gln Arg Val Gln Glu Phe  
 145 150 155 160  
 Glu Ser Met Glu Ile Pro Glu  
 165

&lt;210&gt;66

&lt;211&gt;235

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;66

Cys Lys Tyr Thr Tyr His Pro Pro Gln Leu Pro Pro Asp His Ser Val  
 1 5 10 15  
 Gly Ala Thr Ser Trp Gln Pro Lys Leu Arg Ile Leu Thr Ile Thr Phe  
 20 25 30  
 Leu Val Leu Gly Val Leu Leu Leu Ile Ser Gly Ala Leu Phe Leu Thr  
 35 40 45  
 Leu Gly Val Pro Gly Leu Ala Ala Gly Leu Ser Phe Gly Leu Gly Ile  
 50 55 60  
 Gly Leu Ser Ala Leu Gly Gly Val Leu Val Val Ser Gly Leu Leu Phe  
 65 70 75 80  
 Phe Leu Ile Arg Arg Gly Val Ser Lys Val Arg Pro Glu Glu Ile Pro  
 85 90 95  
 Val Thr Pro Ser His Glu Ala Gln Lys Ile Leu Cys Gln Leu Pro Gln  
 100 105 110  
 Glu Leu Asp Gln Leu Asp Thr Ser Ile Gln Glu Val Val Ser Cys Leu  
 115 120 125  
 Gly Lys Leu Lys Asp Leu Lys Tyr Glu Asp Gln Gly Leu Leu Thr Glu  
 130 135 140  
 Val Gln Glu Lys Leu Arg Val Phe Asp Phe Val Arg Lys Asp Met Val  
 145 150 155 160  
 Thr Glu Phe Leu Glu Leu Gln Gln Val Val Ala Gln Glu Gly Gln Phe  
 165 170 175  
 Leu Asp Tyr Leu Ile Asn Gln Val Gln Ser Ile Ser His Lys Leu Phe  
 180 185 190  
 Val Pro Asp Val Asn Ile Gly Ala His Leu Ala Glu Leu Cys Gly Tyr  
 195 200 205  
 Leu Pro Ser Gly Asp Val Arg Val Glu Arg Leu Lys Arg Ser Ala Arg  
 210 215 220  
 Gln Val Val Asp Arg Phe His Glu Gly Asp Leu  
 225 230 235

&lt;210&gt;67

&lt;211&gt;526

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;67

Arg Glu Cys Cys Gly Val Ala Lys Asn Ala Phe Asp Lys Ala Phe Gly  
 1 5 10 15  
 Ala Leu Glu Glu Cys Val Tyr Lys Ser Leu Thr Glu Ser Tyr Arg Glu  
 20 25 30  
 Ala Phe Tyr Glu Tyr Glu Lys Ala Lys Ile Leu Arg Asn Glu Asp Val

35 40 45  
 Glu Trp Leu Gln Asp Lys Asn Lys Ser Ala Arg Ala Glu Gln Arg Phe  
 50 55 60  
 Arg Glu Val Lys Asp Arg Trp Glu Asp Leu Lys Glu Thr Val Phe Trp  
 65 70 75 80  
 Val Lys Glu Asn Gly Cys Ile Asp Leu Glu Val Leu Thr Ala Val Gly  
 85 90 95  
 Gly Trp Pro Asp Arg Gly Pro Glu His Leu Ile Pro Glu Lys Arg Arg  
 100 105 110  
 Asn Lys Val Met Ser His Lys Leu Trp Glu Ala Thr Met Arg Met Lys  
 115 120 125  
 Gly Ala Glu Gly Thr Tyr Ser Val Ala Arg Val Ala Phe Glu Lys Asp  
 130 135 140  
 Gly Ser Arg Lys Asn Gln Lys Lys Phe Gln Glu Lys Thr Lys Glu Trp  
 145 150 155 160  
 Leu Arg Cys Leu Lys Asp Leu His Asp Gln Glu Cys His Arg Ala Arg  
 165 170 175  
 Glu Arg Leu Ala Glu Leu Glu Ala Leu Tyr Pro Glu Val Ser Val Ser  
 180 185 190  
 Val Val Glu Thr Glu Arg Glu Thr Lys Phe Lys Leu Glu Thr Ala Tyr  
 195 200 205  
 Gly Asn Leu Glu Glu Arg Tyr Gln Ser Val Val Arg Asp Gln Glu Asp  
 210 215 220  
 Tyr Trp Lys Glu Glu Glu Asn Lys Glu Ala Glu Phe Arg Glu Lys Gly  
 225 230 235 240  
 Thr Lys Val Arg Ser Pro Glu Glu Val Val Glu Tyr Leu Gln Ile Leu  
 245 250 255  
 Glu Asn Leu Leu Glu Asp Cys Ser Lys Gln Leu Thr Ile Ala Glu Val  
 260 265 270  
 Val Val Leu Gly Val Glu Leu Glu Ala Thr Ala Glu Phe Glu Tyr Thr  
 275 280 285  
 Ile Leu Ser Asp Ala Ala Asn Arg Leu Lys Val Leu Cys Glu Asp Ile  
 290 295 300  
 Glu Asp Ile Leu Pro Arg Val Glu Glu Ile Glu Ile Met Leu Arg Ile  
 305 310 315 320  
 Ala Glu Leu Pro Phe Leu Pro Ile Lys Gln Ala Phe Thr Lys Ala Phe  
 325 330 335  
 Leu Gln Tyr Asn Ser Cys Lys Asp Lys Leu Ala Lys Val Glu Pro Tyr  
 340 345 350  
 Cys Gln Glu Ser Val Asp Tyr Arg Arg Asn Lys Glu Arg Phe Gln Ser  
 355 360 365  
 Leu Asn Gln Asp Leu Gln Asn Val Tyr Gln Glu Cys Gln Lys Ala Thr  
 370 375 380  
 Gly Leu Glu Ser Glu Val Ser Ala Tyr Arg Asp His Leu Arg Glu Gln  
 385 390 395 400  
 Ile Thr Glu Phe Glu Thr Gln Gly Leu Asp Val Ile Lys Glu Glu Leu  
 405 410 415  
 Leu Phe Val Ser Ser Thr Leu Lys Ser Lys Leu Ser Tyr Asp Pro Leu  
 420 425 430  
 Ile Ala Asp Ile Pro Cys Met Lys Phe Tyr Glu Glu Tyr Tyr Asp Gly  
 435 440 445  
 Ile Asp Lys Ala Arg Val Gln Ser Arg Trp Leu Glu Lys Ser Glu Arg  
 450 455 460  
 Tyr Arg Lys Ala Lys Lys Gly Phe Gln Glu Met Leu Lys Glu Gly Leu  
 465 470 475 480  
 Phe Lys Glu Asp Gln Ala Leu Lys Lys Ala Glu Tyr Arg Leu Leu Arg  
 485 490 495  
 Glu Lys Arg Met Asn Lys Glu Lys Leu Leu Ile Cys Asn Lys Ile Glu  
 500 505 510  
 Ala Ala Gln Gln Arg Val Gln Glu Phe Gly Pro Ser Asp Ser  
 515 520 525  
 <210>68  
 <211>705  
 <212>PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;68

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Met Lys Glu Leu Arg His Glu Ser Tyr Asn Arg Ala Leu His Lys Leu
 1          5          10          15
Ser His Gln Trp Val Arg Tyr Phe Leu Tyr Thr Phe Val Ser Cys Ser
 20          25          30
Phe Ile Val Ala Ile Phe Thr Phe Ala Trp Leu Lys Val Leu Tyr Val
 35          40          45
Pro Glu Xaa Lys Ala Gly Glu Ile Ser Arg Ile Ser Leu Thr Ala Pro
 50          55          60
Met Asp Phe Xaa Leu Ser Trp Ser Ala His Lys Phe Tyr Lys Arg Thr
 65          70          75          80
Ala His Ile Ser Glu Ala Phe Gly Lys Val Tyr His Leu Thr Leu Ser
 85          90          95
Pro Gly Ser Leu Leu Ser Lys Glu Gly Asn Ala Asp Glu Asn Thr Asp
100          105          110
Tyr Trp Phe Lys Lys Ala Ala Asp Phe Leu Leu Ser Thr Asn Phe Val
115          120          125
Asp Ser Ser Thr Gln Lys Cys Leu Lys Asp Leu Cys Ile Tyr Pro Pro
130          135          140
Leu Leu Gly Lys Glu Lys Lys Thr Leu Glu Ile Asn Ile Asn Ser Asn
145          150          155          160
Lys Gly Asn Val Ile Ala Gln Cys Phe Cys His Leu Lys Ile Phe Leu
165          170          175
Ile Gln Glu Asn Cys Pro Gln Pro Cys Phe Asp Ala Ile Met Asp Ile
180          185          190
Leu Lys Ile Ala Asn Phe Glu Val Ala Val Asp Lys Glu Met Ser Gly
195          200          205
Cys Val Lys Gly Glu Leu Leu Gly Lys Arg Cys Ile Glu Lys Ile Thr
210          215          220
Lys Gly Thr Pro Ile Leu Glu Lys Tyr Gln Arg Ile Asp Asp Arg Asp
225          230          235          240
Ala Lys Ile Leu Lys Gln Leu Arg Ala Gln Leu Leu Ser Val His Thr
245          250          255
Leu Phe Ser Cys Arg Ser Leu Trp Gly Ala Ile Phe Val Val Leu Leu
260          265          270
Ile Leu Leu Trp Gly Tyr Gly Ala Leu Lys Ala Leu Cys Pro Glu Met
275          280          285
Leu Lys Ser Pro Gln Arg Phe Met Leu Tyr Ile Ala Ile Leu Thr Leu
290          295          300
Ser Leu Leu Trp Cys Arg Gly Thr Glu Ile Phe Cys Ala Tyr Trp Val
305          310          315          320
Ser Tyr Leu Ser Tyr Pro Pro Ile Leu Pro Phe Thr Ala Val Leu Leu
325          330          335
Gly Tyr Phe Leu Gly Leu Pro Ile Ala Gly Phe Ser Cys Thr Phe Leu
340          345          350
Ala Leu Leu Tyr Thr Leu Gly Ser Asp Leu Trp Asn Asn Ser Trp Phe
355          360          365
Leu Ser Ile Asn Leu Leu Cys Ser Trp Arg Ile Leu Val Ser Leu His
370          375          380
Arg Val Ser Arg Leu Ser Val Phe Trp Ala Cys Met Lys Leu Gly
385          390          395          400
Gly Val Ala Met Gly Ser Leu Leu Met Phe Arg Ile Phe Thr Asn Thr
405          410          415
Ile Ser Arg Glu Ala Leu Tyr Ala Asp Gly Ile Glu Ser Phe Val Tyr
420          425          430
Ser Leu Ile Thr Ala Ile Ser Val Val Ala Leu Ile Pro Val Phe Glu
435          440          445
Ala Ser Phe Gly Ala Ser Thr Asn Phe Ser Leu Leu Thr Tyr Leu Ser
450          455          460
Pro Glu Asn Ala Leu Leu Lys Arg Leu Phe Lys Glu Ala Pro Gly Thr
465          470          475          480
Tyr Gln His Ser Val Leu Val Gly Ser Leu Ala Glu Ala Ala Ala Gln
485          490          495

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Ala Ile Gly Ala Asp Ser Leu Tyr Cys Leu Val Ala Ala His Tyr His  
 500 505 510  
 Asp Ile Gly Lys Leu Ile Asn Pro Gly Phe Phe Ser Glu Asn Gln Lys  
 515 520 525  
 Ile Leu Gln Gln Ser Gly His Ser Leu Ser Pro Leu Glu Cys Ala Lys  
 530 535 540  
 Met Ile Met Arg His Ile Pro Glu Gly Val Asn Leu Ala Arg Gln Xaa  
 545 550 555 560  
 Gly Leu Pro Glu Ser Asp Ile Gln Val Ile Glu Glu His His Gly Thr  
 565 570 575  
 Ser Val Ile Arg Ser Ala Tyr Tyr Ser His Met Val Glu Asn Pro Ser  
 580 585 590  
 Thr Gly Ser Phe Asp Glu Glu Leu Phe Arg Tyr Ser Gly Asn Lys Pro  
 595 600 605  
 Ser Ser Lys Glu Thr Thr Ile Ile Met Ile Ala Asp Ser Phe Glu Ala  
 610 615 620  
 Ala Ser Arg Ser Leu Lys Asn Ala Ser Leu Pro Asp Leu Gln Arg Leu  
 625 630 635 640  
 Ile Asp Gln Ile Ile Gln Gly Lys Leu Gln Asp Gly Gln Phe Ser Cys  
 645 650 655  
 Ser Pro Ile Thr Leu Asp Glu Leu Ala Leu Ile Ser Lys Ser Met Val  
 660 665 670  
 Gln Thr Leu Tyr Gly Ala Leu His Ser Arg Met Lys Tyr Pro Glu Ile  
 675 680 685  
 Ser Tyr Gln Ile Ser Met Asp Ser Cys Pro Lys Pro Ser Ile Gly Gly  
 690 695 700

Thr

705

&lt;210&gt;69

&lt;211&gt;224

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;69

Val Ile Ser Cys Gln Gly Lys Arg Pro Leu Arg Tyr Cys Phe Leu Glu  
 1 5 10 15  
 Ile Gln Ile Leu Ala Lys Ala Gln Val His Glu Cys Ile Ser Phe Xaa  
 20 25 30  
 Arg Ser Trp Tyr Pro Lys Leu Trp Phe Gln Leu Ser Thr Thr Glu Thr  
 35 40 45  
 Thr Gly Asp Arg Glu Lys Lys Ile Pro Leu His Leu Val Glu Asn Ser  
 50 55 60  
 Tyr Phe Phe Thr Asp Gly Val Asp Ala Leu Val His Lys Gly Val Cys  
 65 70 75 80  
 Asp Leu Ala Ile His Ser Ala Lys Asp Leu Pro Glu Thr Pro Ser Leu  
 85 90 95  
 Pro Val Val Ala Ile Thr Arg Cys Leu His Pro Ala Asp Leu Leu Val  
 100 105 110  
 Tyr Ala Asp His Tyr Val His Glu Pro Leu Pro Leu Ser Pro Arg Leu  
 115 120 125  
 Gly Ser Ser Ser Leu Arg Arg Ser Ala Val Leu Lys Gln Leu Phe Pro  
 130 135 140  
 Gln Gly Gln Ile Leu Asp Ile Arg Gly Thr Ile Glu Glu Arg Leu Asp  
 145 150 155 160  
 Gln Leu His Arg Gly His Tyr Asp Ala Ile Val Leu Ala Lys Ala Ala  
 165 170 175  
 Ser Leu Arg Leu His Leu His His Ala Tyr Ser Ile Glu Leu Pro Pro  
 180 185 190  
 Pro Tyr His Ala Leu Gln Gly Ser Leu Ala Ile Thr Ala Lys Asp His  
 195 200 205  
 Ala Gly Lys Trp Lys Gln Leu Phe Thr Pro Ile His Cys His Ser Ser  
 210 215 220

&lt;210&gt;70

&lt;211&gt;334

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;70

Arg Ile Cys Asn Ala Asp Val Phe Glu Ser Glu Ala Leu Asn Ile Ser  
 1 5 10 15  
 Ser Pro Leu Ile Tyr Leu Phe Pro Glu Thr Asn Leu Asp Asn Ile Lys  
 20 25 30  
 Gln Gln Ile Ala Thr Leu Glu Pro Asp Ile Leu Ile Ile Asp Ser Ile  
 35 40 45  
 Gln Ile Ile Phe Asn Pro Thr Leu Asn Ser Ala Pro Gly Ser Val Ala  
 50 55 60  
 Gln Val Arg Glu Val Thr Tyr Glu Leu Met Gln Ile Ala Lys Ser Ala  
 65 70 75 80  
 Gln Ile Thr Thr Phe Ile Ile Gly His Val Thr Lys Ser Gly Glu Ile  
 85 90 95  
 Ala Gly Pro Arg Val Leu Glu His Leu Val Asp Thr Val Leu Tyr Phe  
 100 105 110  
 Glu Gly Asn Ser His Ala Asn Tyr Arg Met Ile Arg Ser Val Lys Asn  
 115 120 125  
 Arg Phe Gly Pro Thr Asn Glu Leu Leu Ile Leu Ser Met His Ala Asp  
 130 135 140  
 Gly Leu Lys Glu Val Ser Asn Pro Ser Gly Leu Phe Leu Gln Glu Lys  
 145 150 155 160  
 Thr Gly Pro Thr Thr Gly Ser Met Ile Ile Pro Ile Ile Glu Gly Ser  
 165 170 175  
 Gly Ala Leu Leu Ile Glu Leu Gln Ala Leu Val Ser Ser Ser Pro Phe  
 180 185 190  
 Ala Asn Pro Val Arg Lys Thr Ala Gly Phe Asp Pro Asn Arg Phe Ser  
 195 200 205  
 Leu Leu Leu Ala Val Leu Glu Lys Arg Ala Gln Val Lys Leu Phe Thr  
 210 215 220  
 Met Asp Val Phe Leu Ser Ile Thr Gly Gly Leu Lys Ile Ile Glu Pro  
 225 230 235 240  
 Ala Ala Asp Leu Gly Ala Leu Leu Ala Val Ala Ser Ser Leu Tyr Asn  
 245 250 255  
 Arg Leu Leu Pro Asn Asn Ser Ile Val Ile Gly Glu Val Gly Leu Gly  
 260 265 270  
 Gly Glu Ile Arg His Val Ala His Leu Glu Arg Arg Ile Lys Glu Gly  
 275 280 285  
 Lys Leu Met Gly Phe Glu Gly Ala Ile Leu Pro Glu Gly Gln Ile Ser  
 290 295 300  
 Ser Leu Pro Lys Glu Ile Arg Glu Asn Phe Arg Leu Gln Gly Val Lys  
 305 310 315 320  
 Thr Ile Lys Arg Cys Tyr Pro Ser Val Thr Leu Thr Pro Val  
 325 330

&lt;210&gt;71

&lt;211&gt;97

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;71

Glu Thr Tyr Val Pro Leu Leu Pro Pro Arg Glu Glu Ile Leu Pro Leu  
 1 5 10 15  
 Met Ser Gly Asn Pro Lys Asn Leu Leu Gln Gln Phe Thr Gln Lys Gln  
 20 25 30  
 Phe Arg Val Leu Pro Val Tyr Gln Ser Thr Ala Val Thr Asp Ala Gln  
 35 40 45  
 Gly Asn Val Ser Tyr Gln Ile Gln Val Leu Val Asn Gln Glu Val Trp  
 50 55 60  
 Gly Glu Gly Asn Ala Ser Ser Lys Lys Glu Ala Glu Lys Ile Ala Ala  
 65 70 75 80  
 Gln Gln Ala Leu Asp Thr Tyr Gly Asn Lys Asn Gln Asn Thr Met Asp  
 85 90 95  
 Val

&lt;210&gt;72

&lt;211&gt;168

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;72

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Ile Pro Asn Ser Lys Phe Lys Asp Gly Ala Leu Leu Ser Met His Pro
 1           5           10           15
Pro Ile Asp Ile Thr Ala Ile Glu Ala Lys Leu Asn Phe Thr Phe Thr
          20           25           30
Gln Pro Lys Leu Leu Glu Ile Ala Leu Thr His Pro Ser Tyr Lys Asn
          35           40           45
Glu Ser Ala Val Gln Ile Glu Asp Ser Glu Arg Leu Glu Phe Leu Gly
          50           55           60
Asp Ala Val Leu Gly Leu Ile Val Thr Glu His Leu Phe Leu Leu Phe
          65           70           75           80
Pro Ser Met Asp Glu Gly Thr Leu Ser Thr Ala Arg Ala Ser Leu Val
          85           90           95
Asn Ala Lys Ala Cys Cys Arg Tyr Thr Thr Met Leu Gly Ile Gly Asp
          100          105          110
Tyr Leu Leu Ile Gly Lys Gly Glu Lys Ile Gln Ser Glu Arg Gly Arg
          115          120          125
Leu Ser Ala Tyr Ala Asn Leu Phe Glu Ser Ile Leu Gly Ala Val Tyr
          130          135          140
Leu Asp Gly Gly Leu Ser Pro Ala Arg Lys Leu Thr Phe Pro Ser Phe
          145          150          155          160
Leu Leu Glu Lys Lys Phe Phe Leu
          165

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&lt;210&gt;73

&lt;211&gt;165

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;73

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Cys Phe Trp Ile Cys Tyr Leu Ile Arg Ile Arg Met Arg Ser Ala Leu
 1           5           10           15
His Leu Gln His Leu Arg His Phe His Asn His Gly Ser Ile Leu Phe
          20           25           30
Glu Asn Leu Thr Thr Ile Lys Asp Cys Phe Leu Leu Glu Thr Lys Leu
          35           40           45
Gln Asn Phe Ile Ala Lys Ala Ser Lys Thr Ile Asp Thr Val Arg Trp
          50           55           60
Arg Glu Asn Ile Phe Arg Ser Met Pro Glu Ile Tyr Thr Val Val Arg
          65           70           75           80
Lys Arg Arg Leu Asp Phe Phe Ala Ala Glu Leu Val His Arg Pro Lys
          85           90           95
Leu Ser Leu Val Arg Asp Leu Trp Val Phe Pro Gly Glu Glu Ile Leu
          100          105          110
Glu Gly Glu Glu Asp Cys Met Leu Phe Leu Leu Leu Ser Gly Asp Arg
          115          120          125
Ala Gly Ser Gly Ile Phe Phe Thr Gly Pro Tyr Pro Ser Asp Leu Tyr
          130          135          140
Glu Leu Glu Lys Gly Thr Thr Gly Leu Leu Leu Ala Phe Ser Ser Val
          145          150          155          160
Gly Ile Pro Val Ile
          165

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&lt;210&gt;74

&lt;211&gt;595

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;74

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Glu Phe Leu Lys Leu Ser Leu His Arg Ile Ser Leu Met Lys Glu Val
 1           5           10           15
Glu Gln Arg Ile Arg Ser Leu Tyr Asp Ala Val Thr Ala Glu Asn Ile
          20           25           30
Cys Arg Trp Leu Ser Asn Asp Cys Thr Gln Gln Asp Ala Lys Thr Ile
          35           40           45

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Leu Gly Trp Leu Asp Thr Asp Pro Ala Gln Leu Glu Asp Leu Phe Gly
 50                               55                               60
Ala Thr Leu Thr Phe Gly Thr Gly Gly Leu Arg Ser Leu Met Gly Ile
 65                               70                               75                               80
Gly Thr Asn Arg Ile Asn Leu Phe Thr Ile Arg Arg Thr Thr Gln Gly
                               85                               90                               95
Leu Val Gln Val Leu Arg Ala His Leu Pro His Pro Gly Asp Pro Met
                               100                               105                               110
Arg Val Val Val Gly Cys Asp Thr Arg His Asn Ser Ile Glu Phe Ala
                               115                               120                               125
Gln Glu Thr Ala Lys Val Leu Ala Gly Asn Gly Cys Glu Val Phe Leu
 130                               135                               140
Phe Gln Tyr Pro Glu Pro Leu Ala Leu Val Ser Phe Thr Val Arg Tyr
 145                               150                               155                               160
Glu Arg Ala Ile Gly Gly Val Met Ile Thr Ala Ser His Asn Pro Pro
                               165                               170                               175
Asn Tyr Asn Gly Tyr Lys Val Tyr Met Ala Ser Gly Gly Gln Val Leu
                               180                               185                               190
Pro Pro Leu Asp Gln Glu Ile Val Ala Ala Cys Ser Ala Val Asn Glu
                               195                               200                               205
Ile Leu Ser Val Pro Ser Ile Asp His Pro Asn Ile His Leu Ile Gly
 210                               215                               220
Lys Glu Tyr Glu Ala Leu Tyr Arg Asp Thr Leu Lys Gln Leu Gln Leu
 225                               230                               235                               240
Tyr Pro Glu Ala Asn Arg Ile Ser Gly Arg Ser Leu Ser Ile Ser Tyr
                               245                               250                               255
Ser Pro Leu His Gly Thr Gly Ile Ser Leu Val Pro His Val Leu Lys
                               260                               265                               270
Asp Trp Gly Phe Leu Ser Val His Leu Val Glu Lys Gln Ala Ile Gly
 275                               280                               285
Asp Gly Asp Phe Pro Thr Val Gln Leu Pro Asn Pro Glu Asp Pro Glu
 290                               295                               300
Ala Leu Thr Leu Gly Thr Glu Gln Met Leu Ala Asn Asp Asp Asp Leu
 305                               310                               315                               320
Phe Ile Ala Thr Asp Pro Asp Ala Asp Arg Val Gly Val Val Cys Leu
                               325                               330                               335
Glu Asp Gly Gln Pro Tyr Arg Phe Asn Gly Asn Gln Met Ala Ser Leu
 340                               345                               350
Leu Ala Asp His Ile Leu Gly Ala Trp Ser Lys Thr Arg His Leu Gly
 355                               360                               365
Glu His Asp Lys Leu Val Lys Ser Leu Val Thr Thr Glu Met Leu Ser
 370                               375                               380
Ala Ile Ala Lys His Tyr His Val Asp Leu Ile Asn Val Gly Thr Gly
 385                               390                               395                               400
Phe Lys Tyr Ile Gly Glu Lys Ile Glu Ser Trp Arg Asn Ser Thr Asn
                               405                               410                               415
Lys Phe Val Phe Gly Ala Glu Glu Ser Tyr Gly Cys Leu Tyr Gly Thr
 420                               425                               430
His Val Glu Asp Lys Asp Ala Ile Ile Ala Ser Ala Leu Ile Ala Glu
 435                               440                               445
Ala Ala Leu Gln Gln Lys Leu Gln Gly Lys Thr Leu Cys Asp Ala Leu
 450                               455                               460
Leu Ser Leu Tyr Glu Thr Tyr Gly Tyr Phe Ala Asn Lys Thr Glu Ser
 465                               470                               475                               480
Val Val Phe Ser Ala Lys Thr Asp Glu Gln Glu Ile Arg Lys Lys Leu
                               485                               490                               495
Ser His Leu Glu Glu Ile Ser Ser Ala Asn Phe Phe Ser Gly Lys Tyr
 500                               505                               510
Gln Val Glu Lys Phe Glu Asn Tyr Lys Gln Gly Ile Gly Phe Asn Leu
 515                               520                               525
Leu Ser Lys Asp Ser Tyr Ala Leu Thr Leu Pro Lys Thr Ser Met Leu
 530                               535                               540
Cys Tyr Tyr Phe Ser Gly Gly Gly Arg Val Ile Ile Arg Pro Ser Gly
 545                               550                               555                               560

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|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Arg | Trp | Leu | Val | Arg | Leu | Phe | Ser | Tyr | Asp | Lys | Pro | Lys | Ile | Lys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Val | Gln | Lys | Ile | Lys | Ala | Asp | Gly | Phe | Ser | Gly | Trp | Leu | Lys | Cys | Asn |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| His | Cys | His | Glu | Met | Ile | His | Ala | Asn | Glu | Leu | Gly | Gln | Asn | Tyr | Asn |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Cys | Cys | Pro | Lys | Cys | Ser | Tyr | His | Tyr | Arg | Ile | Thr | Ala | Ile | Glu | Arg |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Val | Lys | Leu | Leu | Ala | Asp | Lys | Asp | Ser | Trp | Arg | Pro | Leu | Tyr | Thr | Asp |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Leu | Lys | Ser | Gln | Asp | Pro | Leu | Glu | Phe | Ile | Asp | Thr | Asp | Thr | Tyr | Ala |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Asn | Arg | Leu | Glu | Lys | Ala | Arg | Lys | Asn | Thr | Thr | Glu | Ser | Glu | Gly | Val |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ile | Val | Gly | Ile | Cys | Thr | Ile | Gly | Leu | His | Pro | Val | Ala | Leu | Ala | Val |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Met | Asp | Phe | Asn | Phe | Met | Ala | Gly | Ser | Met | Gly | Ala | Val | Val | Gly | Xaa |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Lys | Leu | Thr | Arg | Leu | Ile | Glu | Glu | Ala | Ile | Glu | Thr | Arg | Leu | Pro | Val |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |

Ile Ile Val Ser Ala Ser Gly Gly Ala Arg Met Gln Glu Ser Val Phe  
 165 170 175  
 Ser Leu Met Gln Met Val Lys Thr Ser Ala Ala Leu Ala Lys Leu His  
 180 185 190  
 Glu Ala Gly Leu Pro Tyr Ile Ser Val Leu Thr Asn Pro Thr Ser Gly  
 195 200 205  
 Gly Val Thr Ala Ser Phe Ala Ala Leu Gly Asp Ile Ile Ile Ala Glu  
 210 215 220  
 Pro Lys Ala Leu Ile Cys Phe Ala Gly Pro Arg Val Val Ala Gln Val  
 225 230 235 240  
 Ile Gly Glu Asp Leu Pro Glu Gly Phe Lys Asn Leu Asn Ser Tyr  
 245 250 255

&lt;210&gt;77

&lt;211&gt;90

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;77

Ile Cys Asn Ala Ile Leu Met Thr Val Phe Cys Glu Leu Asp Ser Gly  
 1 5 10 15  
 Gly Glu Leu Pro Glu Tyr Thr Thr Pro Gly Ala Ala Gly Ala Asp Leu  
 20 25 30  
 Arg Ala Asn Ile Glu Glu Pro Ile Ala Leu Leu Pro Gly Gln Arg Ala  
 35 40 45  
 Leu Ile Pro Thr Gly Ile Lys Ala Glu Ile Pro Glu Val Arg Ala Thr  
 50 55 60  
 Gly Pro Ser Ser Glu Arg Phe Gly Phe Lys Ala Arg His Tyr Cys Phe  
 65 70 75 80  
 Lys Phe Pro Arg Asp Tyr Arg Phe Arg Leu  
 85 90

&lt;210&gt;78

&lt;211&gt;101

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;78

Ser Leu Pro Glu Ser Lys Gln Lys Phe Pro Lys Tyr Glu Leu Gln Val  
 1 5 10 15  
 Arg Pro Arg Ser Gly Leu Ala Leu Lys His Gly Ile Thr Val Leu Asn  
 20 25 30  
 Ser Pro Gly Thr Ile Asp Ser Asp Tyr Arg Gly Glu Ile Arg Val Ile  
 35 40 45  
 Leu Ile Asn Phe Gly Asp Ser Thr Phe Ile Ile Glu Pro Lys Met Arg  
 50 55 60  
 Ile Ala Gln Val Val Leu Ser Pro Val Val Gln Ala Thr Phe Val Val  
 65 70 75 80  
 Lys Gln Xaa Ser Leu Ala Glu Thr Ala Arg Gly Ser Gly Gly Phe Gly  
 85 90 95

His Thr Gly Ala Ser

100

&lt;210&gt;79

&lt;211&gt;169

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;79

Val Glu Val Leu Val Ile Leu Glu Gln Ala Lys Met Pro Ser Tyr Cys  
 1 5 10 15  
 Gln Asn Gln Gln Asp Phe Ser Leu Phe Ser Leu Leu Ser Pro Arg Leu  
 20 25 30  
 Val Met Phe Leu Gly Lys His Ser Arg Asp Glu Ile Leu Gln Asp Leu  
 35 40 45  
 Thr Asp Leu Val Asp Ala Ala Gly Leu Leu Glu Asp Lys Gln Ala Phe  
 50 55 60  
 Phe Asp Ala Leu Val Arg Arg Glu Asn Ile Met Ser Thr Gly Ile Gly  
 65 70 75 80  
 Met Gly Val Ala Ile Pro His Gly Lys Leu Glu Ser Cys Ser Asn Phe

85 90 95  
 Phe Ile Ala Ile Gly Ile His Thr Gln Gly Ile Leu Trp Asp Ala Ile  
 100 105 110  
 Asp Gly Ala Leu Val Arg Leu Val Phe Leu Ile Gly Gly Pro Glu Asn  
 115 120 125  
 Ala Gln Ala Glu Tyr Leu Lys Leu Leu Ser Thr Leu Thr Leu Ser Leu  
 130 135 140  
 Arg Glu Glu Ser Arg Arg Gln Gln Leu Leu Gln Val Asn Thr Ile Glu  
 145 150 155 160  
 Glu Val Met Asn Val Phe Val Gly Met  
 165

&lt;210&gt;80

&lt;211&gt;225

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;80

Met Asp Leu Lys Leu Asp Glu Val Ala Ser Leu Leu Asp Val Ser Glu  
 1 5 10 15  
 His Thr Val Leu Gln Trp Leu Lys Glu Gly Ala Ile Pro Ser Tyr Ser  
 20 25 30  
 Met Asn Asn Glu Tyr Arg Phe Ser Arg Glu Glu Ile Glu Asp Trp Leu  
 35 40 45  
 Leu His Asn Gln Ala Leu Met Ile Gln Glu Arg Gly Glu Asp Lys Glu  
 50 55 60  
 Ala Leu Lys Asp Leu Ser Leu Lys Tyr Ser Leu Tyr Lys Ala Ile His  
 65 70 75 80  
 Arg Gly Gly Val Leu Cys Asp Val Val Val His Ser Lys Glu Glu Ala  
 85 90 95  
 Leu Gln Tyr Ala Ser Lys Tyr Ile Ala Gln Lys Phe Gln Leu Asp Glu  
 100 105 110  
 Ser Val Leu Phe Glu Met Leu Ser His Arg Glu Asn Leu Met Ser Thr  
 115 120 125  
 Gly Ile Gly Glu Gly Ile Ala Leu Pro His Ala Lys Asp Phe Leu Ile  
 130 135 140  
 Asn Ala Tyr Tyr Asp Ile Val Val Pro Met Phe Leu Ala Glu Pro Ile  
 145 150 155 160  
 Glu Tyr Gly Ala Leu Asp Gly Lys Pro Val Gly Ile Leu Phe Phe Leu  
 165 170 175  
 Phe Ala Cys Gln Asp Lys Ser His Leu Asn Leu Val Asn Lys Ile Val  
 180 185 190  
 His Leu Gly Met Ser Leu Asn Ala Arg Ser Phe Phe Lys Asn Tyr Pro  
 195 200 205  
 Asn Lys Asp Gln Leu Leu Ala Tyr Val Lys Glu Trp Glu Ser Gln Thr  
 210 215 220

His

225

&lt;210&gt;81

&lt;211&gt;480

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;81

Lys Lys Ser Phe Cys Cys Tyr Gly Asp Pro His Arg Leu Pro Gly Asp  
 1 5 10 15  
 Cys Ser Arg Met Met Ser Ser Lys Arg Thr Ser Lys Ile Ala Val Leu  
 20 25 30  
 Ser Ile Leu Leu Thr Phe Thr His Ser Ile Gly Phe Ala Asn Ala Asn  
 35 40 45  
 Ser Ser Val Gly Leu Gly Thr Val Tyr Ile Thr Ser Glu Val Val Lys  
 50 55 60  
 Lys Pro Gln Lys Gly Ser Glu Arg Lys Gln Ala Lys Lys Glu Pro Arg  
 65 70 75 80  
 Ala Arg Lys Gly Tyr Leu Val Pro Ser Ser Arg Thr Leu Ser Ala Arg  
 85 90 95  
 Ala Gln Lys Met Lys Asn Ser Ser Arg Lys Glu Ser Ser Gly Gly Cys

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100      105      110
Asn Glu Ile Ser Ala Asn Ser Thr Pro Arg Ser Val Lys Leu Arg Arg
115      120      125
Asn Lys Arg Ala Glu Gln Lys Ala Ala Lys Gln Gly Phe Ser Ala Phe
130      135      140
Ser Asn Leu Thr Leu Lys Ser Leu Leu Pro Lys Leu Pro Ser Lys Gln
145      150      155      160
Lys Thr Ser Ile His Glu Arg Glu Lys Ala Thr Ser Arg Phe Val Asn
165      170      175
Glu Ser Gln Leu Ser Ser Ala Arg Lys Arg Tyr Cys Thr Pro Ser Ser
180      185      190
Ala Ala Pro Ser Leu Phe Leu Glu Thr Glu Ile Val Arg Ala Pro Val
195      200      205
Glu Arg Thr Lys Glu Leu Gln Asp Asn Glu Ile His Ile Pro Val Val
210      215      220
Gln Val Gln Thr Asn Pro Lys Glu Gln Asn Thr Lys Thr Thr Lys Gln
225      230      235      240
Leu Ala Ser Gln Ala Ser Ile Gln Gln Ser Glu Gly Thr Glu Gln Ser
245      250      255
Leu Arg Glu Leu Ala Gln Gly Ala Ser Leu Pro Val Leu Val Arg Ser
260      265      270
Asn Pro Glu Val Ser Val Gln Arg Gln Lys Glu Glu Leu Leu Lys Glu
275      280      285
Leu Val Ala Glu Arg Arg Gln Cys Lys Arg Lys Ser Val Arg Gln Ala
290      295      300
Leu Glu Ala Arg Ser Leu Thr Lys Lys Val Ala Arg Gly Gly Ser Val
305      310      315      320
Thr Ser Thr Leu Arg Tyr Asp Pro Glu Lys Ala Ala Glu Ile Lys Ser
325      330      335
Arg Arg Asn Cys Lys Val Ser Pro Glu Ala Arg Glu Gln Lys Tyr Ser
340      345      350
Ser Cys Lys Arg Asp Ala Arg Ala Asn Gly Lys Gln Asp Lys Thr Thr
355      360      365
Pro Ser Glu Asp Ala Ser Gln Glu Glu Gln Gln Thr Gly Ala Gly Leu
370      375      380
Val Arg Lys Thr Pro Lys Ser Gln Val Ala Ser Asn Ala Gln Asn Phe
385      390      395      400
Tyr Arg Asn Ser Lys Asn Thr Asn Ile Asp Ser Tyr Leu Thr Ala Asn
405      410      415
Gln Tyr Ser Cys Ser Ser Glu Glu Thr Asp Trp Pro Cys Ser Ser Cys
420      425      430
Val Ser Lys Arg Arg Thr His Asn Ser Ile Ser Val Cys Thr Met Val
435      440      445
Val Thr Val Ile Ala Met Ile Val Gly Ala Leu Ile Ile Ala Asn Ala
450      455      460
Thr Glu Ser Gln Thr Thr Ser Asp Pro Thr Pro Pro Thr Pro Thr Pro
465      470      475      480

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&lt;210&gt;82

&lt;211&gt;590

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;82

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Tyr Asp Tyr Tyr Lys Tyr Asn Met Phe Phe Lys Lys Asn Tyr Met Thr
1      5      10      15
Asp Phe Pro Thr His Phe Lys Gly Pro Lys Leu Asn Pro Ile Lys Val
20      25      30
Asn Pro Asn Phe Phe Glu Arg Asn Pro Lys Val Ala Arg Val Leu Gln
35      40      45
Ile Thr Ala Val Val Leu Gly Ile Ile Ala Leu Leu Ser Gly Ile Val
50      55      60
Leu Ile Ile Gly Thr Pro Leu Gly Ala Pro Ile Ser Met Ile Leu Gly
65      70      75      80
Gly Cys Leu Leu Ala Ser Gly Gly Ala Leu Phe Val Gly Gly Thr Ile
85      90      95

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Ala Thr Ile Leu Gln Ala Arg Asn Ser Tyr Lys Lys Ala Val Asn Gln  
 100 105 110  
 Lys Lys Leu Ser Glu Pro Leu Met Glu Arg Pro Glu Leu Lys Ala Leu  
 115 120 125  
 Asp Tyr Ser Leu Asp Leu Lys Glu Val Trp Asp Leu His His Ser Cys  
 130 135 140  
 Cys Gln His Leu Lys Lys Ile Asp Leu Asn Leu Ser Glu Thr Gln Arg  
 145 150 155 160  
 Glu Val Leu Asn Gln Ile Lys Ile Asp Asp Glu Gly Pro Ser Leu Gly  
 165 170 175  
 Glu Cys Ala Ala Met Ile Ser Glu Asn Tyr Asp Ala Cys Leu Lys Met  
 180 185 190  
 Leu Ala Tyr Arg Glu Glu Leu Leu Lys Glu Gln Thr Gln Tyr Gln Glu  
 195 200 205  
 Thr Arg Phe Asn Gln Asn Leu Thr His Arg Asn Lys Val Leu Leu Ser  
 210 215 220  
 Ile Leu Ser Arg Ile Thr Asp Asn Ile Ser Lys Ala Gly Gly Val Phe  
 225 230 235 240  
 Ser Leu Lys Phe Ser Thr Leu Ser Ser Arg Met Ser Arg Ile His Thr  
 245 250 255  
 Thr Thr Thr Val Ile Leu Ala Leu Ser Ala Val Val Ser Val Met Val  
 260 265 270  
 Val Ala Ala Leu Ile Pro Gly Gly Ile Leu Ala Leu Pro Ile Leu Leu  
 275 280 285  
 Ala Val Ala Ile Ser Ala Gly Val Ile Val Thr Gly Leu Ser Tyr Leu  
 290 295 300  
 Val Arg Gln Ile Leu Ser Asn Thr Lys Arg Asn Arg Gln Asp Phe Tyr  
 305 310 315 320  
 Lys Asp Phe Val Lys Asn Val Asp Ile Glu Leu Leu Asn Gln Thr Val  
 325 330 335  
 Thr Leu Gln Arg Phe Leu Phe Glu Met Leu Lys Gly Val Leu Lys Glu  
 340 345 350  
 Glu Glu Glu Val Ser Leu Glu Gly Gln Asp Trp Tyr Thr Gln Tyr Ile  
 355 360 365  
 Thr Asn Ala Pro Ile Glu Lys Arg Leu Ile Glu Glu Ile Arg Val Thr  
 370 375 380  
 Tyr Lys Glu Ile Asp Ala Gln Thr Lys Lys Met Lys Thr Asp Leu Glu  
 385 390 395 400  
 Phe Leu Glu Asn Glu Val Arg Ser Gly Arg Leu Ser Val Ala Ser Pro  
 405 410 415  
 Ser Glu Asp Pro Ser Glu Thr Pro Ile Phe Thr Gln Gly Lys Glu Phe  
 420 425 430  
 Ala Lys Leu Arg Arg Gln Thr Ser Gln Asn Ile Ser Thr Ile Tyr Gly  
 435 440 445  
 Pro Asp Asn Glu Asn Ile Asp Pro Glu Phe Ser Leu Pro Trp Met Pro  
 450 455 460  
 Lys Lys Glu Glu Glu Ile Asp His Ser Leu Glu Pro Val Thr Lys Leu  
 465 470 475 480  
 Glu Pro Gly Ser Arg Glu Glu Leu Leu Leu Val Glu Gly Val Asn Pro  
 485 490 495  
 Thr Leu Arg Glu Leu Asn Met Arg Ile Ala Leu Leu Gln Gln Gln Leu  
 500 505 510  
 Ser Ser Val Arg Lys Trp Arg His Pro Arg Gly Glu His Tyr Gly Asn  
 515 520 525  
 Val Ile Tyr Ser Asp Thr Glu Leu Asp Arg Ile Gln Met Leu Glu Gly  
 530 535 540  
 Ala Phe Tyr Asn His Leu Arg Glu Ala Gln Glu Glu Ile Thr Gln Ser  
 545 550 555 560  
 Leu Gly Asp Leu Val Asp Ile Gln Asn Arg Ile Leu Gly Ile Ile Val  
 565 570 575  
 Glu Gly Asp Ser Asp Ser Arg Thr Glu Glu Glu Pro Gln Glu  
 580 585 590  
 <210>83  
 <211>580

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;83

Gly Val Tyr Met Ala Asn Pro Thr Gln Ser Arg Pro Pro Ser Pro Glu  
 1 5 10 15  
 Ile Ser Ile Glu Glu Leu Glu Leu Gln Glu Leu Ala Gly Ser Ser Asn  
 20 25 30  
 Thr Glu Thr Ile Ser Asn Thr Pro Pro Pro Ser Cys Ala Ala Thr Ala  
 35 40 45  
 Glu Glu Val Ser Leu Phe Ile Glu Gly Gly Arg Arg Asn Ser Glu Asp  
 50 55 60  
 Glu Glu Gly Pro Leu Gly Ser Cys Glu Val Tyr Asp Val Val Cys Ile  
 65 70 75 80  
 Thr Asn Gln Gly Asp Pro Glu Val Arg Asp His Glu Val Arg Val Met  
 85 90 95  
 Tyr Ile Asn Gly Ser Gly Arg Thr Gln His Glu Gly Ile Leu Asp Ala  
 100 105 110  
 Met Asn Ile Cys Asp Leu Arg Gly Glu Pro Val Arg Phe Ile His Asn  
 115 120 125  
 Ser Gly Tyr Gly Leu Gly Ser Cys Phe Leu Gly Ile Arg Asn Arg Ile  
 130 135 140  
 Pro Pro Arg Asp Asn Val Ile Ser Gln Ala Ile Gln Ala Arg Trp Asn  
 145 150 155 160  
 Glu Phe Phe Ile Phe Ala Glu Asn Ala Asn Arg Asp Tyr Ile Val Leu  
 165 170 175  
 Phe Ser Gly Asn Gly Gly Leu Tyr Leu Gln Val Ala Leu Asp Asn Ser  
 180 185 190  
 Ile Tyr Ser His His Ile Leu Cys Val Gly Ile Gly Ser Ser Tyr Tyr  
 195 200 205  
 Ile Gln Gly Asn Tyr Arg Val His Asn Tyr Arg Val Thr Gly Asp Trp  
 210 215 220  
 Thr Thr Leu Leu Asp Arg Arg Gly Ala Thr Ala Val Asn Thr Thr Thr  
 225 230 235 240  
 Leu Pro Tyr Ala Asp Ser Ala Glu Gly Leu Phe Leu Pro Ser Val Arg  
 245 250 255  
 Cys Pro Ser Tyr Gln Trp Ala Leu Arg Cys Gly Glu Gln Cys Leu Ile  
 260 265 270  
 Met Asp Asn Asn Gln Gln Val Gly Phe Arg Pro Gln Asp Ser Ser Ser  
 275 280 285  
 Glu Ile Ala Leu Val Val Asn Leu Asn Gln Asp His Ser Thr Trp Thr  
 290 295 300  
 Arg Leu Ile Glu Trp Ile Asp Arg Gly Asp Ser Gln Ala Val Leu Glu  
 305 310 315 320  
 Leu Asn Pro Gln Pro Ser His Cys Arg Asp Ile Ala Leu Thr Ala Leu  
 325 330 335  
 Tyr Ala Thr Thr Arg Ile Ser Ser Leu Leu Gln Glu Cys Leu Met Ile  
 340 345 350  
 Ser Val Thr Tyr Ala Pro Glu Val Phe Val Thr Tyr Ala Ile Val Thr  
 355 360 365  
 Gly Tyr Ser Ile Met Thr Leu Arg Tyr Phe Ile Leu Leu Leu Thr Asn  
 370 375 380  
 Arg Pro Gly Cys Arg Arg His Phe Arg Val Leu Arg Leu Ala Ala Leu  
 385 390 395 400  
 Gly Leu Gln Ser Leu Gly Phe Leu Thr Val Leu Leu Asp His Ile Asn  
 405 410 415  
 Val Thr Arg Arg Val Asn Arg Arg Pro Pro Leu Ile Ser Val Ile Phe  
 420 425 430  
 Cys Thr Ala Ser Phe Ala Thr Gly Ser Phe Ile Tyr Val Asp Leu Thr  
 435 440 445  
 Arg Met Phe Phe Thr Ser Leu Arg Ser Arg Leu Gln Leu Phe Val Gln  
 450 455 460  
 Arg Arg Leu Thr Gly Arg Gly Leu Pro Leu Arg Arg Val Phe Val Asn  
 465 470 475 480  
 His Leu Asp Ser Leu Arg Phe Ser Gln Asn Ala Leu Ile Thr Phe His

485 490 495  
 Gly Gly Leu Phe Met Pro Leu Ile Ile Gly Phe Phe Asn Gln Leu Val  
 500 505 510  
 Ile Gln Val Pro Arg Val Val Ile Arg Pro Asn Thr Thr Ala Val Tyr  
 515 520 525  
 Asp Leu Asn Gln Thr Ser Gln Glu Ala Trp Asp Ser Gly Asp Val Leu  
 530 535 540  
 Ala Ile Gly Gln Thr Ile Asn Phe Leu Leu Cys Met Ile Leu Leu Val  
 545 550 555 560  
 Ile Asn Thr Phe Phe Phe Val Arg Ser Val Arg Arg Asn Leu His Arg  
 565 570 575  
 Arg Pro His Arg  
 580

&lt;210&gt;84

&lt;211&gt;264

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;84

Lys Gly Ser Gly Tyr Ser Tyr Arg Gly Pro Pro Met Ala Val Glu Gly  
 1 5 10 15  
 Arg Val Asn Ser Ser Gln Ala Leu Asn Gln Asp Cys Gln Glu Val Leu  
 20 25 30  
 Ala Asn Lys Gln Ser Lys Gly Leu Leu Arg Cys Arg Ile Leu Ser Ile  
 35 40 45  
 Val Val Ala Val Ile Thr Phe Ile Ala Gly Val Val Leu Ile Ala Leu  
 50 55 60  
 Thr Leu Ala Ser Ile Leu Thr Ser Val Pro Tyr Leu Ala Leu Gly Val  
 65 70 75 80  
 Phe Leu Leu Ile Val Thr Leu Gly Cys Ile Ile Phe Ala Leu Cys Ser  
 85 90 95  
 Glu Lys Ile Lys Lys Val Pro Pro Thr Pro Ile Ser His Lys Glu Glu  
 100 105 110  
 Ile Ile Ala Trp Phe Glu Glu Arg Lys Asn Ile Asp Met Glu Lys Glu  
 115 120 125  
 Lys Glu Asp Pro Glu His Phe Gly Arg Thr Ala Thr Asp Ile Pro Met  
 130 135 140  
 Arg Ser Ala Leu Asp Gln Phe Asn His Ser Cys His His Ile His Glu  
 145 150 155 160  
 Ser Pro Ala Leu Thr Glu Thr Tyr Arg Ser His Gln Asp Val Leu Leu  
 165 170 175  
 Phe Lys Asp Trp Cys Pro Val Thr Leu Pro Asp Val Thr Ser Glu Glu  
 180 185 190  
 Glu Val Leu Ile Arg Ser Val Val Gly Ser Tyr Leu Leu Met Glu Ala  
 195 200 205  
 Cys Val Pro Lys Val Ser Met Leu Ile Asp Glu Leu His Asn Lys Leu  
 210 215 220  
 Xaa Ser Pro Ser Glu Arg Glu Cys Leu Phe Ile Asp Lys Lys Thr Leu  
 225 230 235 240  
 Gln Arg Lys Ala Ser Phe Leu Phe Thr Gln Lys Asp Leu Ala Thr Phe  
 245 250 255  
 Phe Leu Asp Leu Tyr Ala Gly Glu  
 260

&lt;210&gt;85

&lt;211&gt;193

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;85

Ser Phe Met Ile Lys Lys Phe Phe Ile Tyr Ser Leu Ile Phe Ser Cys  
 1 5 10 15  
 Ser Phe Ser Ala Pro Leu Lys Gly Ile Cys Asn Glu Asp Val Ser Ser  
 20 25 30  
 Gln Ser Arg Ile Glu Glu Asp Pro Glu Val Leu Ile Thr Gln Leu Asn  
 35 40 45  
 Glu Leu Ile Glu Thr Pro Ile Glu Glu Gly Lys Glu Ile Arg Asn Glu

50 55 60  
 Leu Gln Ala Ile Ser Asp Gly Gln Lys Ser Ser Glu Glu Ile Glu Glu  
 65 70 75 80  
 Ser Cys Gly Thr Ser Asp Ser Glu Gly Leu Ser Glu Lys Thr Asp Lys  
 85 90 95  
 Glu Ser Ser Asn Glu Tyr Val Leu Asp Phe Phe Asp Ser Met Val Gln  
 100 105 110  
 Arg Leu Glu Gly Ile Ser Lys Met Cys Gln Ser Gly Gln Val Ala Gln  
 115 120 125  
 Ile Ile Asp Cys Phe Asn Arg Glu Phe Asp Ile Arg Asn Arg Glu Leu  
 130 135 140  
 Glu Leu Lys Asn Arg Glu Leu Glu Leu Arg Glu Lys Asp Leu Glu Phe  
 145 150 155 160  
 Lys Lys Ser Ile Leu Asp Trp Asn Lys Glu Lys Val Ser Arg Glu Leu  
 165 170 175  
 Ala Phe Gln Arg Glu Gln Asp Ile Lys Gln Thr Leu Met Leu Leu Lys  
 180 185 190  
 Lys

&lt;210&gt;86

&lt;211&gt;297

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;86

Asn Phe Lys Ile Trp Gly Ile Arg Ile Thr Ile Ala Val Glu Leu Pro  
 1 5 10 15  
 Pro Pro Glu Val Gly Gly Glu Leu Pro Pro Tyr Phe Ser Ala Ser Asn  
 20 25 30  
 Phe Val Val Ile Glu Arg Gly Ala Pro Ser Leu Pro Ser Pro Gln Gln  
 35 40 45  
 Leu Leu Ser Leu Pro Glu Tyr Ser Arg Gln Pro Pro Pro Gly Tyr Phe  
 50 55 60  
 Asp Glu Thr Ala Ser Ile Thr Ser Arg Thr Ser Glu Glu Met Phe Gly  
 65 70 75 80  
 Thr Leu Val Ser Thr Leu Cys Cys Pro Ala Asn Ser Glu Arg Asp Trp  
 85 90 95  
 Glu Asp His Glu Val Asn Cys Ile Tyr Ile Ala Ser Thr Ser Asp Thr  
 100 105 110  
 Gln Leu Glu Ala Val Gln Gly Gly Met His Ile Thr Glu Leu Arg Gly  
 115 120 125  
 Glu Pro Val Arg Val Leu Tyr Glu Thr Gly His Leu Tyr Ala Phe Ala  
 130 135 140  
 Arg Glu Asn Thr Cys His Ser Arg Leu Glu Val Ser His Thr Val Arg  
 145 150 155 160  
 Ala Met Thr Tyr Phe Trp Asp Arg Phe Phe Ser Arg His Trp Asn Val  
 165 170 175  
 Gly Arg Arg Phe Leu Val Phe Tyr Gln Gly Asn Gly Gly Ala Tyr Val  
 180 185 190  
 Gln Ala Ala Leu Asp Ser Ser Met His Thr Gln Asp Ile Tyr Val Leu  
 195 200 205  
 Gly Leu Ser Pro Thr Val Tyr Ile Arg Gly Asn Tyr His Val Gln His  
 210 215 220  
 Tyr Arg Val Arg Gly Phe Trp Pro Ser Cys Leu Asp Ser Leu Ala Ala  
 225 230 235 240  
 Cys Ala Glu Asn Thr Ser Val Leu Pro Thr Gly Asn Arg Val Thr Glu  
 245 250 255  
 Ser Phe Thr Pro Leu Tyr Ser Ala Thr His Leu Ile Thr Arg Tyr Gly  
 260 265 270  
 Met Val Arg Asp Ala Cys Trp Phe Val Leu Arg Ala Trp Glu Cys Phe  
 275 280 285  
 Gln Lys Arg Asn Asn Lys His Leu Leu  
 290 295  
 <210>87  
 <211>380



&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;87

Arg Glu Leu Ser Arg Thr Ala Leu Pro Cys Ser Arg Ile Leu Ala Leu  
 1 5 10 15  
 Leu Pro Gly Phe Ser Ser Gly Leu Cys Gly Lys Tyr Ile Ser Thr Ser  
 20 25 30  
 Tyr Gly Glu Ser Ser Asp Gly Ile Phe Tyr Pro Ser Leu Phe Ser His  
 35 40 45  
 Thr Phe Asp Asn Ala Ile Arg Tyr Gly Glu Arg Cys Leu Leu Val Cys  
 50 55 60  
 Ser Glu Gly Met Gly Met Leu Pro Glu Thr Gln Gln Thr Ser Pro  
 65 70 75 80  
 Leu Thr Ser Leu Glu Gly Gly His Glu Val Ala Leu Val Leu Asn Pro  
 85 90 95  
 Gln Gln Asn Pro Glu Ala Leu Ser Ile Ala Ser Arg Leu Met His Glu  
 100 105 110  
 Glu Arg Gly Gly Arg Leu Glu Ser Asn Tyr Met Pro Gly Arg Ser Ser  
 115 120 125  
 Asn Pro Phe Met Thr Ser Met Tyr Val Leu Val Arg Leu Asn Thr Leu  
 130 135 140  
 Ala Gln Ile Tyr Leu Met Ser Pro Tyr Tyr Ser Phe Gln Ser Asn Asp  
 145 150 155 160  
 Ile Val Cys Leu Ile Phe Ile Ser Ser Ala Ala Val Glu Thr Val Ser  
 165 170 175  
 Tyr Ile Phe Leu Thr Val Thr Asp Ser Thr Cys Gly Arg Arg Tyr Leu  
 180 185 190  
 Arg Val Pro Arg Leu Val Cys Thr Gly Leu Arg Asn Leu Ala Leu Pro  
 195 200 205  
 Thr Thr Leu Leu Glu Leu Leu Ile Leu Ser Tyr Pro Arg Ser Val Glu  
 210 215 220  
 Gly Val Pro Phe Asn Val Arg Phe Ile Leu Gly Tyr Met Cys Thr Thr  
 225 230 235 240  
 Arg Val Val Phe Phe Ala Trp Asn Leu Ile Leu His Trp Pro Phe Arg  
 245 250 255  
 Cys Leu Arg His Gly Ile Gln Leu Phe Val His Arg Ser Ile Ile Gly  
 260 265 270  
 His Thr Leu Gly Ala Arg Ile Thr Asp Leu Thr Leu Ala Ser Met Arg  
 275 280 285  
 Tyr Ala Ile Val Phe Pro Ser Ile Val Ser Ser Cys Leu Leu Thr Ala  
 290 295 300  
 Leu Ala His Ala Asn Thr Asn Ile Leu Ala Leu Asp Pro Tyr Arg Leu  
 305 310 315 320  
 Ile Glu Ser Gly Asp Leu Arg Arg Pro Ala Phe Asn Asp Asp Glu Met  
 325 330 335  
 Gln Gln Ala Asp Asn Pro Trp Asp Ala Tyr Ser Ile Gly Leu Val Ile  
 340 345 350  
 Asn Thr Cys Ile Tyr Met Leu Ile Leu Phe Ala Asn Leu Ile Phe Met  
 355 360 365  
 Val Tyr Ser Val Arg Arg Tyr His Arg Ser Arg Arg  
 370 375 380

&lt;210&gt;88

&lt;211&gt;156

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;88

Ile Lys Ser Leu Arg Ser Ile Leu Glu Phe Ile Cys Pro Leu Gln His  
 1 5 10 15  
 Ala Arg Cys Leu Lys Lys Gln His Lys Ile Ile Glu Glu Leu Phe Pro  
 20 25 30  
 Glu Pro Phe Gln Lys Asp His Leu Tyr Leu Lys Leu Met Glu Asn Ser  
 35 40 45  
 Ser Ser Arg Asp Ala Phe Asp Lys Lys Arg Met Leu Lys Glu Asn Leu  
 50 55 60

Val Val Gly Cys Gln Ser Asp Leu Tyr Leu Tyr Glu Val Tyr Gln Asp  
 65 70 75 80  
 Gly Ile Leu Phe Phe Phe Thr Tyr Thr Lys Ala Leu Val Ser Ser Gly  
 85 90 95  
 Ile Ala Ser Leu Phe Thr Glu Val Tyr Ser Gly Glu Thr Pro Ser Thr  
 100 105 110  
 Ile Leu Thr Cys Lys Pro Ile Phe Phe Gln Arg Leu Thr Pro Tyr Leu  
 115 120 125  
 Ser Phe Gly Arg Leu Asn Gly Gly Glu Ser Leu Tyr Met Arg Met Lys  
 130 135 140  
 Gln Ile Ala Val Gln Tyr Leu Lys Pro Pro Gln Thr  
 145 150 155  
 <210>89  
 <211>345  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>89  
 Cys Leu Leu Phe Tyr Phe Phe His Tyr Arg Met Ser Thr Pro Leu Ser  
 1 5 10 15  
 Ser Gly Gly Ile Ser Pro Ser Asp Gln Tyr Val Pro Gln Glu Leu Phe  
 20 25 30  
 Cys Asp Arg Leu Ser Ser Ser Arg Ser Asn Ser Pro Asp Ser Asn Ala  
 35 40 45  
 Ser Gly Asp Ser Pro Ile Val Ser Pro Pro Ile Ser Ala Leu Val Ala  
 50 55 60  
 Leu Thr Asp Leu Lys Leu Val Pro Tyr Asn Gln Asn Ser Phe Ser Trp  
 65 70 75 80  
 Thr Thr Arg Leu Lys Asn Ala Val Glu Lys Ile Gly Leu Phe Leu Gln  
 85 90 95  
 Arg Asn Trp Lys Tyr Ile Leu Leu Tyr Ile Leu Ala Trp Ala Leu Ile  
 100 105 110  
 Leu Val Cys His His Thr Val Ala Leu Thr Leu Thr Ile Trp Leu Gly  
 115 120 125  
 Val Gly Leu Gly Ile Gly Val Val Phe Gly Ile Phe Thr Ala Thr Cys  
 130 135 140  
 Leu Asp Lys Glu Asn Lys His Arg His Val Asn Ser Leu Trp Asn Leu  
 145 150 155 160  
 Ile Asn His Gly Ile Leu Gln Leu Asp Pro Asn Gly Thr Arg Gln Ile  
 165 170 175  
 Leu Leu Ala Thr Met Ile Ala Ser Ile Ser Ala Leu Ile Tyr Ala Val  
 180 185 190  
 Pro Gln Ala Val Gly Leu Val Ile Gly Phe Ser Ile Gly Asn Gln Leu  
 195 200 205  
 Ser Ile Asn Thr Val Tyr Gly Ala Arg Leu Gly Asp Glu Ala Thr Tyr  
 210 215 220  
 Ala Ile Asp Arg Lys Ala His Lys Lys Arg Ile Glu Asn Ile Glu Gln  
 225 230 235 240  
 Ala Ile Asn Gln His Gln Ile Ile Lys His Gln Met Ile Asn Gln Lys  
 245 250 255  
 Gln Leu Asn Ala Leu Ile Glu Ile Asn Arg Asn Asn Gln Thr Asp Pro  
 260 265 270  
 Ala Thr Ala Asn Leu Leu Ala Ser Leu Lys Leu Asn Leu Asn Gln Pro  
 275 280 285  
 Met Pro Tyr Cys Phe Ser Met Pro Glu Cys Gly Val Thr Ser Ser Tyr  
 290 295 300  
 Leu Asp Leu Asn Asn Asn Ser Pro Asp Asp Ile Ile Ala Arg Ala Asp  
 305 310 315 320  
 Gln Cys Ile Met Thr Leu Ser Gln Thr Leu Gln Gln Ile Lys Lys Glu  
 325 330 335  
 Pro Asp Arg Ile Ile Glu Ser Asn His  
 340 345  
 <210>90  
 <211>394  
 <212>PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;90

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Met Ser Lys Glu Thr Phe Gln Arg Asn Lys Pro His Ile Asn Ile Gly
 1           5           10           15
Thr Ile Gly His Val Asp His Gly Lys Thr Thr Leu Thr Ala Ala Ile
          20           25           30
Thr Arg Ala Leu Ser Gly Asp Gly Leu Ala Ser Phe Arg Asp Tyr Ser
          35           40           45
Ser Ile Asp Asn Thr Pro Glu Lys Ala Arg Gly Ile Thr Ile Asn
          50           55           60
Ala Ser His Val Glu Tyr Glu Thr Pro Asn Arg His Tyr Ala His Val
          65           70           75           80
Asp Cys Pro Gly His Ala Asp Tyr Val Lys Asn Met Ile Thr Gly Ala
          85           90           95
Ala Gln Met Asp Gly Ala Ile Leu Val Val Ser Ala Thr Asp Gly Ala
          100          105          110
Met Pro Gln Thr Lys Glu His Ile Leu Leu Ala Arg Gln Val Gly Val
          115          120          125
Pro Tyr Ile Val Val Phe Leu Asn Lys Val Asp Met Ile Ser Gln Glu
          130          135          140
Asp Ala Glu Leu Ile Asp Leu Val Glu Met Glu Leu Ser Glu Leu Leu
          145          150          155          160
Glu Glu Lys Gly Tyr Lys Gly Cys Pro Ile Ile Arg Gly Ser Ala Leu
          165          170          175
Lys Ala Leu Glu Gly Asp Ala Asn Tyr Ile Glu Lys Val Arg Glu Leu
          180          185          190
Met Gln Ala Val Asp Asp Xaa Ile Pro Thr Pro Glu Arg Glu Ile Asp
          195          200          205
Lys Pro Phe Leu Met Pro Ile Glu Asp Val Phe Ser Ile Ser Gly Arg
          210          215          220
Gly Thr Val Val Thr Gly Arg Ile Glu Arg Gly Ile Val Lys Val Ser
          225          230          235          240
Asp Lys Val Gln Leu Val Gly Leu Gly Glu Thr Lys Glu Thr Ile Val
          245          250          255
Thr Gly Val Glu Met Phe Arg Lys Glu Leu Pro Glu Gly Arg Ala Gly
          260          265          270
Glu Asn Val Gly Leu Leu Leu Arg Gly Ile Gly Lys Asn Asp Val Glu
          275          280          285
Arg Gly Met Val Val Cys Gln Pro Asn Ser Val Lys Pro His Thr Lys
          290          295          300
Phe Lys Ser Ala Val Tyr Val Leu Gln Lys Glu Glu Gly Gly Arg His
          305          310          315          320
Lys Pro Phe Phe Ser Gly Tyr Arg Pro Gln Phe Phe Phe Arg Thr Thr
          325          330          335
Asp Val Thr Gly Val Val Thr Leu Pro Glu Gly Thr Glu Met Val Met
          340          345          350
Pro Gly Asp Asn Val Glu Leu Asp Val Glu Leu Ile Gly Thr Val Ala
          355          360          365
Leu Glu Glu Gly Met Arg Phe Ala Ile Arg Glu Gly Gly Arg Thr Ile
          370          375          380
Gly Ala Gly Thr Ile Ser Lys Ile Asn Ala
          385          390

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&lt;210&gt;91

&lt;211&gt;88

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;91

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Ser Arg Ser Trp Phe Met Lys Gln Gln His Asn Arg Lys Ala Leu Ser
 1           5           10           15
Arg Lys Ile Gly Thr Val Lys Lys Gln Ala Lys Phe Ala Gly Ser Phe
          20           25           30
Leu Asp Glu Ile Lys Lys Ile Glu Trp Val Ser Lys His Asp Leu Lys
          35           40           45
Lys Tyr Ile Lys Val Val Leu Ile Ser Ile Phe Gly Phe Gly Phe Ala

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50 55 60  
 Ile Tyr Phe Val Asp Leu Val Leu Arg Lys Ser Ile Thr Cys Leu Asp  
 65 70 75 80  
 Gly Ile Thr Thr Phe Leu Phe Gly  
 85

&lt;210&gt;92

&lt;211&gt;190

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;92

Gln Pro Phe Cys Ser Val Asn Cys Met Tyr Lys Trp Tyr Val Val Gln  
 1 5 10 15  
 Val Phe Thr Ala Gln Glu Lys Lys Val Lys Lys Ala Leu Glu Asp Phe  
 20 25 30  
 Lys Glu Ser Ser Gly Met Thr Asp Phe Ile Gln Glu Ile Ile Leu Pro  
 35 40 45  
 Ile Glu Asn Val Met Glu Val Lys Lys Gly Glu His Lys Val Val Glu  
 50 55 60  
 Lys Tyr Ile Trp Pro Gly Tyr Leu Leu Val Lys Met His Leu Thr Asp  
 65 70 75 80  
 Glu Ser Trp Leu Tyr Val Lys Ser Thr Ala Gly Ile Val Glu Phe Leu  
 85 90 95  
 Gly Gly Gly Val Pro Val Ala Leu Ser Glu Asp Glu Val Arg Ser Ile  
 100 105 110  
 Leu Thr Asp Ile Glu Glu Lys Lys Ser Gly Val Val Gln Lys His Gln  
 115 120 125  
 Phe Glu Val Gly Ser Arg Val Lys Ile Asn Asp Gly Val Phe Val Asn  
 130 135 140  
 Phe Ile Gly Thr Val Ser Glu Val Phe His Asp Lys Gly Arg Leu Ser  
 145 150 155 160  
 Val Met Val Ser Ile Phe Gly Arg Glu Thr Arg Val Asp Asp Leu Glu  
 165 170 175  
 Phe Trp Gln Val Glu Glu Val Ala Pro Gly Gln Glu Ser Glu  
 180 185 190

&lt;210&gt;93

&lt;211&gt;150

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;93

Val Ser Gln Cys Lys Val Arg Phe Ser Met Ser Val Lys Lys Val Ile  
 1 5 10 15  
 Lys Ile Ile Lys Leu Gln Ile Pro Gly Gly Lys Ala Asn Pro Ala Pro  
 20 25 30  
 Pro Ile Gly Pro Ala Leu Gly Ala Ala Gly Val Asn Ile Met Gly Phe  
 35 40 45  
 Cys Lys Glu Phe Asn Ala Ala Thr Gln Asp Lys Pro Gly Asp Leu Leu  
 50 55 60  
 Pro Val Val Ile Thr Val Tyr Ala Asp Lys Thr Phe Thr Phe Ile Thr  
 65 70 75 80  
 Lys Gln Pro Pro Val Ser Ser Leu Ile Lys Lys Thr Leu Asn Leu Glu  
 85 90 95  
 Ser Gly Ser Lys Ile Pro Asn Arg Asn Lys Val Gly Lys Leu Thr Gln  
 100 105 110  
 Ala Gln Val Glu Ala Ile Ala Glu Gln Lys Met Lys Asp Met Asp Ile  
 115 120 125  
 Val Leu Leu Glu Ser Ala Lys Arg Met Val Glu Gly Thr Ala Arg Ser  
 130 135 140  
 Met Gly Ile Asp Val Glu  
 145 150

&lt;210&gt;94

&lt;211&gt;232

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;94

Met Thr Lys His Gly Lys Arg Ile Arg Gly Ile Leu Lys Asn Tyr Asp  
 1 5 10 15  
 Phe Ser Lys Ser Tyr Ser Leu Arg Glu Ala Ile Asp Ile Leu Lys Gln  
 20 25 30  
 Cys Pro Pro Val Arg Phe Asp Gln Thr Val Asp Val Ser Ile Lys Leu  
 35 40 45  
 Gly Ile Asp Pro Lys Lys Ser Asp Gln Gln Ile Arg Gly Ala Val Phe  
 50 55 60  
 Leu Pro Asn Gly Thr Gly Lys Thr Leu Arg Ile Leu Val Phe Ala Ser  
 65 70 75 80  
 Gly Asn Lys Val Lys Glu Ala Val Glu Ala Gly Ala Asp Phe Met Gly  
 85 90 95  
 Ser Asp Asp Leu Val Glu Lys Ile Lys Ser Gly Trp Leu Glu Phe Asp  
 100 105 110  
 Val Ala Val Ala Thr Pro Asp Met Met Arg Glu Val Gly Lys Leu Gly  
 115 120 125  
 Lys Val Leu Gly Pro Arg Asn Leu Met Pro Thr Pro Lys Thr Gly Thr  
 130 135 140  
 Val Thr Thr Asp Val Ala Lys Ala Ile Ser Glu Leu Arg Lys Gly Lys  
 145 150 155 160  
 Ile Glu Phe Lys Ala Asp Arg Ala Gly Val Cys Asn Val Gly Val Gly  
 165 170 175  
 Lys Leu Ser Phe Glu Ser Ser Gln Ile Lys Glu Asn Ile Glu Ala Leu  
 180 185 190  
 Ser Ser Ala Leu Ile Lys Ala Lys Pro Pro Ala Ala Lys Gly Gln Tyr  
 195 200 205  
 Leu Val Ser Phe Thr Ile Ser Ser Thr Met Gly Pro Gly Ile Ser Ile  
 210 215 220  
 Asp Thr Arg Glu Leu Met Ala Ser  
 225 230

&lt;210&gt;95

&lt;211&gt;170

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;95

Met Lys Gln Glu Lys Thr Leu Leu Leu Gln Glu Val Glu Asp Lys Ile  
 1 5 10 15  
 Ser Ala Ala Gln Gly Phe Ile Leu Leu Arg Tyr Leu Arg Phe Thr Ala  
 20 25 30  
 Ala Tyr Ser Arg Glu Phe Arg Asn Ser Leu Ser Gly Val Ser Ala Glu  
 35 40 45  
 Phe Glu Val Leu Lys Lys Arg Ile Phe Phe Lys Ala Ile Glu Ala Ala  
 50 55 60  
 Gly Leu Glu Val Asp Cys Ser Asp Thr Asp Gly His Leu Gly Val Val  
 65 70 75 80  
 Phe Ser Cys Gly Asp Pro Val Ser Ala Ala Lys Gln Val Leu Asp Phe  
 85 90 95  
 Asn Lys Gln His Lys Asp Ser Leu Val Phe Leu Ala Gly Arg Met Asp  
 100 105 110  
 Asn Ala Ser Leu Ser Gly Ala Glu Val Glu Ala Val Ala Lys Leu Pro  
 115 120 125  
 Ser Leu Lys Glu Leu Arg Gln Gln Val Val Gly Leu Phe Ala Ala Pro  
 130 135 140  
 Met Ser Gln Val Val Gly Ile Met Asn Ser Val Leu Ser Gly Val Ile  
 145 150 155 160  
 Ser Cys Val Asp Gln Lys Ala Gly Lys Asn  
 165 170

&lt;210&gt;96

&lt;211&gt;132

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;96

Val Thr Lys Val Thr Thr Glu Ser Leu Glu Thr Leu Val Glu Lys Leu  
 1 5 10 15

Ser Asn Leu Thr Val Leu Glu Leu Ser Gln Leu Lys Lys Leu Leu Glu  
 20 25 30  
 Glu Lys Trp Asp Val Thr Ala Ser Ala Pro Val Val Ala Val Ala Ala  
 35 40 45  
 Gly Gly Gly Gly Glu Ala Pro Val Ala Ala Glu Pro Thr Glu Phe Ala  
 50 55 60  
 Val Thr Leu Glu Asp Val Pro Ala Asp Lys Lys Ile Gly Val Leu Lys  
 65 70 75 80  
 Val Val Arg Glu Val Thr Gly Leu Ala Leu Lys Glu Ala Lys Glu Met  
 85 90 95  
 Thr Glu Gly Leu Pro Lys Thr Val Lys Glu Lys Thr Ser Lys Ser Asp  
 100 105 110  
 Ala Glu Asp Thr Val Lys Lys Leu Gln Asp Ala Gly Ala Lys Ala Ser  
 115 120 125  
 Phe Lys Gly Leu  
 130

&lt;210&gt;97

&lt;211&gt;1262

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;97

Leu Ser His Gln Asn Ser Arg Arg Thr Arg Thr Leu Lys Cys Pro Glu  
 1 5 10 15  
 Arg Val Ser Val Lys Lys Lys Glu Asp Ile Pro Asp Leu Pro Asn Leu  
 20 25 30  
 Ile Glu Ile Gln Ile Lys Ser Tyr Lys Gln Phe Leu Gln Ile Gly Lys  
 35 40 45  
 Leu Ala Glu Glu Arg Glu Asn Ile Gly Leu Glu Glu Val Phe Arg Glu  
 50 55 60  
 Ile Phe Pro Ile Lys Ser Tyr Asn Glu Ala Thr Val Leu Glu Tyr Leu  
 65 70 75 80  
 Ser Tyr Asn Leu Gly Val Pro Lys Tyr Ser Pro Glu Glu Cys Ile Arg  
 85 90 95  
 Arg Gly Ile Thr Tyr Ser Val Thr Leu Lys Val Arg Phe Arg Leu Thr  
 100 105 110  
 Asp Glu Thr Gly Ile Lys Glu Glu Glu Val Tyr Met Gly Thr Ile Pro  
 115 120 125  
 Leu Met Thr Asp Lys Gly Thr Phe Ile Ile Asn Gly Ala Glu Arg Val  
 130 135 140  
 Val Val Ser Gln Val His Arg Ser Pro Gly Ile Asn Phe Glu Gln Glu  
 145 150 155 160  
 Lys His Ser Lys Gly Asn Ile Leu Phe Ser Phe Arg Ile Ile Pro Tyr  
 165 170 175  
 Arg Gly Ser Trp Leu Glu Ala Ile Phe Asp Ile Asn Asp Leu Ile Tyr  
 180 185 190  
 Ile His Ile Asp Arg Lys Lys Arg Arg Arg Lys Ile Leu Ala Ile Thr  
 195 200 205  
 Phe Ile Arg Ala Leu Gly Tyr Ser Ser Asp Ala Asp Ile Ile Glu Glu  
 210 215 220  
 Phe Phe Thr Ile Gly Glu Ser Ser Leu Arg Ser Glu Lys Asp Phe Ala  
 225 230 235 240  
 Leu Leu Val Gly Arg Ile Leu Ala Asp Asn Ile Ile Asp Glu Ala Ser  
 245 250 255  
 Ser Leu Val Tyr Gly Lys Ala Gly Glu Lys Leu Ser Thr Ala Met Leu  
 260 265 270  
 Lys Arg Met Leu Asp Ala Gly Ile Ala Ser Val Lys Ile Ala Val Asp  
 275 280 285  
 Ala Asp Glu Asn His Pro Ile Ile Lys Met Leu Ala Lys Asp Pro Thr  
 290 295 300  
 Asp Ser Tyr Glu Ala Ala Leu Lys Asp Phe Tyr Arg Arg Leu Arg Pro  
 305 310 315 320  
 Gly Glu Pro Ala Thr Leu Ala Asn Ala Arg Ser Thr Ile Met Arg Leu  
 325 330 335  
 Phe Phe Asp Pro Lys Arg Tyr Asn Leu Gly Arg Val Gly Arg Tyr Lys

389

|                         |                             |                     |
|-------------------------|-----------------------------|---------------------|
| 850                     | 855                         | 860                 |
| Asp Ala Ser Leu Thr Val | Pro Pro Gly Thr Glu         | Gly Val Val Met Asp |
| 865                     | 870                         | 875                 |
| Val Lys Val Phe Ser Arg | Lys Asp Arg Leu Ser Lys Ser | Asp Asp Glu         |
| 885                     | 890                         | 895                 |
| Leu Val Glu Glu Ala Val | His Leu Lys Asp Leu Gln Lys | Gly Tyr Lys         |
| 900                     | 905                         | 910                 |
| Asn Gln Val Ala Thr Leu | Lys Thr Glu Tyr Arg Glu Lys | Leu Gly Ala         |
| 915                     | 920                         | 925                 |
| Leu Leu Leu Asn Glu Lys | Ala Pro Ala Ala Ile Ile     | His Arg Arg Thr     |
| 930                     | 935                         | 940                 |
| Ala Glu Ile Val Val His | Glu Gly Leu Leu Phe Asp     | Gln Glu Thr Ile     |
| 945                     | 950                         | 955                 |
| Glu Arg Ile Glu Gln Glu | Asp Leu Val Asp Leu Leu     | Met Pro Asn Cys     |
| 965                     | 970                         | 975                 |
| Glu Met Tyr Glu Val Leu | Lys Gly Leu Leu Ser Asp     | Tyr Glu Thr Ala     |
| 980                     | 985                         | 990                 |
| Leu Gln Arg Leu Glu Ile | Asn Tyr Lys Thr Glu Val     | Glu His Ile Arg     |
| 995                     | 1000                        | 1005                |
| Glu Gly Asp Ala Asp Leu | Asp His Gly Val Ile Arg     | Gln Val Lys Val     |
| 1010                    | 1015                        | 1020                |
| Tyr Val Ala Ser Lys Arg | Lys Leu Gln Val Gly Asp     | Lys Met Ala Gly     |
| 1025                    | 1030                        | 1035                |
| Arg His Gly Asn Lys Gly | Val Val Ser Lys Ile Val     | Pro Glu Ala Asp     |
| 1045                    | 1050                        | 1055                |
| Met Pro Tyr Leu Ser Asn | Gly Glu Thr Val Gln Met     | Ile Leu Asn Pro     |
| 1060                    | 1065                        | 1070                |
| Leu Gly Val Pro Ser Arg | Met Asn Leu Gly Gln Val     | Leu Glu Thr His     |
| 1075                    | 1080                        | 1085                |
| Leu Gly Tyr Ala Ala Lys | Thr Ala Gly Ile Tyr Val     | Lys Thr Pro Val     |
| 1090                    | 1095                        | 1100                |
| Phe Glu Gly Phe Pro Glu | Gln Arg Ile Trp Asp Met     | Met Ile Glu Gln     |
| 1105                    | 1110                        | 1115                |
| Gly Leu Pro Glu Asp Gly | Lys Ser Phe Leu Tyr Asp     | Gly Lys Thr Gly     |
| 1125                    | 1130                        | 1135                |
| Glu Arg Phe Asp Asn Lys | Val Val Ile Gly Tyr Ile     | Tyr Met Leu Lys     |
| 1140                    | 1145                        | 1150                |
| Leu Ser His Leu Ile Ala | Asp Lys Ile His Ala Arg     | Ser Ile Gly Pro     |
| 1155                    | 1160                        | 1165                |
| Tyr Ser Leu Val Thr Gln | Gln Pro Leu Gly Gly Lys     | Ala Gln Met Gly     |
| 1170                    | 1175                        | 1180                |
| Gly Gln Arg Phe Gly Glu | Met Glu Val Trp Ala Leu     | Glu Ala Tyr Gly     |
| 1185                    | 1190                        | 1195                |
| Val Ala His Met Leu Gln | Glu Ile Leu Thr Val Lys     | Ser Asp Asp Val     |
| 1205                    | 1210                        | 1215                |
| Ser Gly Arg Thr Arg Ile | Tyr Glu Ser Ile Val Lys     | Gly Glu Asn Leu     |
| 1220                    | 1225                        | 1230                |
| Leu Arg Ser Gly Thr Pro | Glu Ser Phe Asn Val Leu     | Ile Lys Glu Met     |
| 1235                    | 1240                        | 1245                |
| Gln Gly Leu Gly Leu Asp | Val Arg Pro Met Val Val     | Asp Ala             |
| 1250                    | 1255                        | 1260                |

<210>98  
 <211>1218  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>98  
 Leu Glu Lys Ile Met Phe Gly Glu Asn Ser Arg Asp Ile Gly Val Leu  
 1 5 10 15  
 Ser Lys Glu Gly Leu Phe Asp Lys Leu Glu Ile Gly Ile Ala Ser Asp  
 20 25 30  
 Ile Thr Ile Arg Asp Lys Trp Ser Cys Gly Glu Ile Lys Lys Pro Glu  
 35 40 45  
 Thr Ile Asn Tyr Arg Thr Phe Lys Pro Glu Lys Gly Gly Leu Phe Cys  
 50 55 60



Glu Lys Ile Leu Gly Pro Thr Lys Asp Trp Glu Cys Cys Cys Gly Lys  
 65 70 75 80  
 Tyr Lys Lys Ile Lys His Lys Gly Ile Val Cys Asp Arg Cys Gly Val  
 85 90 95  
 Glu Val Thr Leu Ser Lys Val Arg Arg Glu Arg Met Ala His Ile Glu  
 100 105 110  
 Leu Ala Val Pro Ile Val His Ile Trp Phe Phe Lys Thr Thr Pro Ser  
 115 120 125  
 Arg Ile Gly Asn Val Leu Gly Met Thr Ala Ser Asp Leu Glu Arg Val  
 130 135 140  
 Ile Tyr Tyr Glu Glu Tyr Val Val Ile Asp Pro Gly Lys Thr Asp Leu  
 145 150 155 160  
 Thr Lys Lys Gln Leu Leu Asn Asp Ala Gln Tyr Arg Glu Val Val Glu  
 165 170 175  
 Lys Trp Gly Lys Asp Ala Phe Val Ala Lys Met Gly Gly Glu Ala Ile  
 180 185 190  
 Tyr Asp Leu Leu Lys Ser Glu Asp Leu Gln Ser Leu Leu Lys Asp Leu  
 195 200 205  
 Lys Glu Arg Leu Arg Lys Thr Lys Ser Gln Gln Ala Arg Met Lys Leu  
 210 215 220  
 Ala Lys Arg Leu Lys Ile Ile Glu Gly Phe Val Ser Ser Ser Asn His  
 225 230 235 240  
 Pro Glu Trp Met Val Leu Lys Asn Ile Pro Val Val Pro Pro Asp Leu  
 245 250 255  
 Arg Pro Leu Val Pro Leu Asp Gly Gly Arg Phe Ala Thr Ser Asp Leu  
 260 265 270  
 Asn Asp Leu Tyr Arg Arg Val Ile Asn Arg Asn Asn Arg Leu Lys Ala  
 275 280 285  
 Ile Leu Arg Leu Lys Thr Pro Glu Val Ile Val Arg Asn Glu Lys Arg  
 290 295 300  
 Met Leu Gln Glu Ala Val Asp Ala Leu Phe Asp Asn Gly Arg His Gly  
 305 310 315 320  
 His Pro Val Met Gly Ala Gly Asn Arg Pro Leu Lys Ser Leu Ser Glu  
 325 330 335  
 Met Leu Lys Gly Lys Asn Gly Arg Phe Arg Gln Asn Leu Leu Gly Lys  
 340 345 350  
 Arg Val Asp Tyr Ser Gly Arg Ser Val Ile Ile Val Gly Pro Glu Leu  
 355 360 365  
 Lys Phe Asn Gln Cys Gly Leu Pro Lys Glu Met Ala Leu Glu Leu Phe  
 370 375 380  
 Glu Pro Phe Ile Ile Xaa Arg Leu Lys Asp Gln Gly Ser Val Tyr Thr  
 385 390 395 400  
 Ile Arg Ser Ala Lys Lys Met Ile Gln Arg Gly Ala Pro Glu Val Trp  
 405 410 415  
 Asp Val Leu Glu Glu Ile Ile Lys Gly His Pro Val Leu Leu Asn Arg  
 420 425 430  
 Ala Pro Thr Leu His Arg Leu Gly Ile Gln Ala Phe Glu Pro Val Leu  
 435 440 445  
 Ile Glu Gly Lys Ala Ile Arg Ile His Pro Leu Val Cys Ala Ala Phe  
 450 455 460  
 Asn Ala Asp Phe Asp Gly Asp Gln Met Ala Val His Val Pro Leu Ser  
 465 470 475 480  
 Val Glu Ala Gln Leu Glu Ala Lys Val Leu Met Met Ala Pro Asp Asn  
 485 490 495  
 Ile Phe Leu Pro Ser Ser Gly Lys Pro Val Ala Ile Pro Ser Lys Asp  
 500 505 510  
 Met Thr Leu Gly Leu Tyr Tyr Leu Met Ala Asp Pro Thr Tyr Phe Pro  
 515 520 525  
 Glu Glu His Gly Gly Lys Thr Lys Ile Phe Lys Asp Glu Ile Glu Val  
 530 535 540  
 Leu Arg Ala Leu Asn Asn Gly Gly Phe Ile Asp Asp Val Phe Gly Asp  
 545 550 555 560  
 Arg Arg Asp Glu Thr Gly Arg Gly Ile His Ile His Glu Lys Ile Lys  
 565 570 575

Val Arg Ile Asp Gly Gln Ile Ile Glu Thr Thr Pro Gly Arg Val Leu  
 580 585 590  
 Phe Asn Arg Ile Val Pro Lys Glu Leu Gly Phe Gln Asn Tyr Ser Met  
 595 600 605  
 Pro Ser Lys Arg Ile Ser Glu Leu Ile Leu Gln Cys Tyr Lys Lys Val  
 610 615 620  
 Gly Leu Glu Ala Thr Val Arg Phe Leu Asp Asp Leu Lys Asp Leu Gly  
 625 630 635 640  
 Phe Ile Gln Ala Thr Lys Ala Ala Ile Ser Met Gly Leu Lys Asp Val  
 645 650 655  
 Arg Ile Pro Asp Ile Lys Ser His Ile Leu Lys Asp Ala Tyr Asp Lys  
 660 665 670  
 Val Ala Ile Val Lys Lys Gln Tyr Asp Asp Gly Ile Ile Thr Glu Gly  
 675 680 685  
 Glu Arg His Ser Lys Thr Ile Ser Ile Trp Thr Glu Val Ser Glu Gln  
 690 695 700  
 Leu Ser Asp Ala Leu Tyr Val Glu Ile Ser Lys Gln Thr Arg Ser Lys  
 705 710 715 720  
 His Asn Pro Leu Phe Leu Met Ile Asp Ser Gly Ala Arg Gly Asn Lys  
 725 730 735  
 Ser Gln Leu Lys Gln Leu Gly Ala Leu Arg Gly Leu Met Ala Lys Pro  
 740 745 750  
 Asn Gly Ala Ile Ile Glu Ser Pro Ile Thr Ser Asn Phe Arg Glu Gly  
 755 760 765  
 Leu Thr Val Leu Glu Tyr Ser Ile Ser Ser His Gly Ala Arg Lys Gly  
 770 775 780  
 Leu Ala Asp Thr Ala Leu Lys Thr Ala Asp Ser Gly Tyr Leu Thr Arg  
 785 790 795 800  
 Arg Leu Val Asp Val Ala Gln Asp Val Ile Ile Thr Glu Lys Asp Cys  
 805 810 815  
 Gly Thr Leu Asn His Ile Glu Ile Ser Ala Ile Gly Gln Gly Ser Glu  
 820 825 830  
 Glu Leu Leu Pro Leu Lys Asp Arg Ile Tyr Gly Arg Thr Val Ala Glu  
 835 840 845  
 Asp Val Tyr Gln Pro Gly Asp Lys Ser Arg Leu Leu Ala Gln Ser Gly  
 850 855 860  
 Asp Val Leu Asn Ser Val Gln Ala Glu Ala Ile Asp Asp Ala Gly Ile  
 865 870 875 880  
 Glu Thr Ile Lys Ile Arg Ser Thr Leu Thr Cys Glu Ser Pro Arg Gly  
 885 890 895  
 Val Cys Ala Lys Cys Tyr Gly Leu Asn Leu Ala Asn Gly Arg Leu Ile  
 900 905 910  
 Gly Met Gly Glu Ala Val Gly Ile Ala Ala Gln Ser Ile Gly Glu  
 915 920 925  
 Pro Gly Thr Gln Leu Thr Met Arg Thr Phe His Leu Gly Gly Ile Ala  
 930 935 940  
 Ala Thr Ser Ser Thr Pro Glu Ile Ile Thr Asn Ser Asp Gly Ile Leu  
 945 950 955 960  
 Val Tyr Met Asp Leu Arg Val Val Leu Gly Gln Glu Gly His Asn Leu  
 965 970 975  
 Val Leu Asn Lys Lys Gly Ala Leu His Val Val Gly Asp Glu Gly Arg  
 980 985 990  
 Thr Leu Asn Glu Tyr Lys Lys Leu Leu Ser Thr Lys Ser Ile Glu Ser  
 995 1000 1005  
 Leu Glu Val Phe Pro Val Glu Leu Gly Val Lys Ile Leu Val Ala Asp  
 1010 1015 1020  
 Gly Thr Pro Val Ser Gln Gly Gln Arg Ile Ala Glu Val Glu Leu His  
 1025 1030 1035 1040  
 Asn Ile Pro Ile Ile Cys Asp Lys Pro Gly Phe Ile Lys Tyr Glu Asp  
 1045 1050 1055  
 Leu Val Glu Gly Ile Ser Thr Glu Lys Val Val Asn Lys Asn Thr Gly  
 1060 1065 1070  
 Leu Val Glu Leu Ile Val Lys Gln His Arg Gly Glu Leu His Pro Gln  
 1075 1080 1085

Ile Ala Ile Tyr Asp Asp Ala Asp Leu Ser Glu Leu Val Gly Thr Tyr  
 1090 1095 1100  
 Ala Ile Pro Ser Gly Ala Ile Ile Ser Val Glu Glu Gly Gln Arg Val  
 1105 1110 1115 1120  
 Asp Pro Gly Met Leu Leu Ala Arg Leu Pro Arg Gly Ala Ile Lys Thr  
 1125 1130 1135  
 Lys Asp Ile Thr Gly Gly Leu Pro Arg Val Ala Glu Leu Val Glu Ala  
 1140 1145 1150  
 Arg Lys Pro Glu Asp Ala Ala Asp Ile Ala Lys Ile Asp Gly Val Val  
 1155 1160 1165  
 Asp Phe Lys Gly Ile Gln Lys Asn Lys Arg Ile Leu Val Val Cys Asp  
 1170 1175 1180  
 Glu Met Thr Gly Met Glu Glu Glu His Leu Ile Pro Leu Thr Lys His  
 1185 1190 1195 1200  
 Leu Ile Val Gln Arg Gly Asp Ser Val Ile Lys Gly Ser Ser Leu Pro  
 1205 1210 1215  
 Met Val

&lt;210&gt;99

&lt;211&gt;186

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;99

Gly Gln Gln Leu Thr Asp Gly Leu Val Val Pro His Glu Ile Leu Glu  
 1 5 10 15  
 Ile Cys Gly Val Arg Glu Leu Gln Lys Tyr Leu Val Asn Glu Val Gln  
 20 25 30  
 Glu Val Tyr Arg Leu Gln Gly Val Asp Ile Asn Asp Lys His Ile Glu  
 35 40 45  
 Ile Ile Val Arg Gln Met Leu Gln Lys Val Arg Ile Thr Asp Pro Gly  
 50 55 60  
 Asp Thr Thr Leu Leu Phe Gly Glu Asp Val Asn Lys Lys Glu Phe Tyr  
 65 70 75 80  
 Glu Glu Asn Arg Arg Thr Glu Glu Asp Gly Gly Lys Pro Ala Gln Ala  
 85 90 95  
 Val Pro Val Leu Leu Gly Ile Thr Lys Ala Ser Leu Gly Thr Glu Ser  
 100 105 110  
 Phe Ile Ser Ala Ala Ser Phe Gln Asp Thr Thr Arg Val Leu Thr Asp  
 115 120 125  
 Ala Ala Cys Cys Ser Lys Thr Asp Tyr Leu Leu Gly Phe Lys Glu Asn  
 130 135 140  
 Val Ile Met Gly His Met Ile Pro Gly Gly Thr Gly Phe Glu Thr His  
 145 150 155 160  
 Lys Arg Ile Lys Gln Tyr Leu Glu Lys Glu Gln Glu Asp Leu Val Phe  
 165 170 175  
 Asp Phe Val Ser Glu Thr Glu Cys Val Xaa  
 180 185

&lt;210&gt;100

&lt;211&gt;337

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;100

Leu Glu Ile Asn Ser Asp Ala Lys Val Pro Met Ser Asn Gln Phe Asp  
 1 5 10 15  
 Gln Leu Lys Lys Leu Ser Thr Ile Val Cys Asp Ser Gly Asp Pro Glu  
 20 25 30  
 Leu Val Lys Ala Ser Gly Ser Gln Asp Ala Thr Thr Asn Pro Ser Leu  
 35 40 45  
 Ile Leu Lys Val Ala Gln Glu Pro Lys Phe Gln Glu Leu Leu Asn Glu  
 50 55 60  
 Ala Val Val Trp Gly Ile Arg Gln Asn Gly Asp Asp Leu Gln Thr Leu  
 65 70 75 80  
 Ser Phe Ile Leu Asp Lys Ile Gln Val Asn Phe Ala Leu Glu Ile Ile  
 85 90 95

Lys Asn Ile Pro Gly Arg Ile Ser Leu Glu Ile Asp Ala Arg Leu Ser  
                   100                  105                  110  
 Phe Asn Val Glu Ala Met Val Gln Arg Ala Val Phe Leu Ser Gln Leu  
                   115                  120                  125  
 Phe Glu Ala Met Gly Gly Asp Lys Lys Arg Leu Leu Val Lys Ile Pro  
                   130                  135                  140  
 Gly Thr Trp Glu Gly Ile Arg Ala Val Glu Phe Leu Glu Ala Lys Gly  
                   145                  150                  155                  160  
 Ile Ala Cys Asn Val Thr Leu Ile Phe Asn Leu Val Gln Ala Ile Ala  
                   165                  170                  175  
 Ala Ala Lys Ala Lys Ala Thr Leu Ile Ser Pro Phe Val Gly Arg Ile  
                   180                  185                  190  
 Tyr Asp Trp Trp Ile Ala Ala Tyr Gly Asp Glu Gly Tyr Ser Ile Asp  
                   195                  200                  205  
 Ala Asp Pro Gly Val Ala Ser Val Ser Asn Ile Tyr Ala Tyr Tyr Lys  
                   210                  215                  220  
 Lys Phe Gly Ile Pro Thr Gln Ile Met Ala Ala Ser Phe Arg Thr Lys  
                   225                  230                  235                  240  
 Glu Gln Val Leu Ala Leu Ala Gly Cys Asp Leu Leu Thr Ile Ser Pro  
                   245                  250                  255  
 Lys Leu Leu Asp Glu Leu Lys Lys Ser Gln His Pro Val Lys Lys Glu  
                   260                  265                  270  
 Leu Asp Pro Ala Glu Ala Lys Lys Leu Asp Val Gln Pro Ile Glu Leu  
                   275                  280                  285  
 Thr Glu Ser Phe Phe Arg Phe Leu Met Asn Glu Asp Ala Met Ala Thr  
                   290                  295                  300  
 Xaa Lys Leu Ala Glu Gly Ile Arg Ile Phe Ala Gly Asp Thr Gln Ile  
                   305                  310                  315                  320  
 Leu Glu Thr Ala Ile Thr Glu Phe Ile Lys Gln Ile Ala Ala Glu Gly  
                   325                  330                  335  
 Ala

&lt;210&gt;101

&lt;211&gt;132

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;101

Ser Glu Met Lys Asn Lys Met Asp Tyr Lys Ser Gln Leu Val Phe Ser  
           1                  5                  10                  15  
 Cys Pro Cys Cys Cys Lys Gly Asn Val Cys Phe Ser Val Phe Asn Leu  
                   20                  25                  30  
 Asp Val Ile Leu Thr Cys Asn Val Cys Ser Ser Thr Tyr Thr Phe Asp  
                   35                  40                  45  
 Ser Val Ile Arg Asn Glu Ile Arg Gln Phe Val Ala Leu Cys Lys Arg  
                   50                  55                  60  
 Ile His Asp Ala Asn Ser Ile Leu Gly Asn Ala Thr Val Ser Val Ser  
                   65                  70                  75                  80  
 Val Glu Asp Asn Gln Met Asp Ile Pro Phe Gln Leu Leu Phe Ser Arg  
                   85                  90                  95  
 Phe Pro Val Val Leu Asn Leu Ser Leu Asp Gly Lys Lys Ile Ala Ile  
                   100                  105                  110  
 Arg Phe Leu Phe Asp Ala Leu Asn Thr Ser Ile Leu His Gln Glu Ser  
                   115                  120                  125  
 Asp Leu Ile Ser  
                   130

&lt;210&gt;102

&lt;211&gt;192

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;102

Asn Lys Ser Thr Ala Arg Lys Lys Ile Gly Lys Phe Glu Lys Lys Pro  
           1                  5                  10                  15  
 Ser Leu Ser Pro Val Gln Trp Val Arg Tyr Ser Gly Lys Asn Tyr Ser  
                   20                  25                  30

Ile Gln Thr Pro Ser Leu Trp Gln Cys Ile Asp Asp Lys Thr Gln Leu  
           35                  40                  45  
 Pro Glu Lys Leu Asp Val Leu Ile Gly Lys Gly Lys Gly Asn Leu  
           50                  55                  60  
 Thr Pro Thr Ile Asn Ile Ala Gln Glu Ile Thr Ser Lys Ser Ser Lys  
           65                  70                  75                  80  
 Glu Tyr Ile Glu Glu Ile Leu Ala Tyr His Lys Ala Asn Glu Met Thr  
                   85                  90                  95  
 Leu Glu Ser Gly Ile Phe Thr Gln Ile Gln Ser Pro Ser Gly Glu Phe  
                   100                  105                  110  
 Thr Ile Ile Lys Thr Glu Lys Asn Ser Ser Trp Gly Arg Val Phe Cys  
                   115                  120                  125  
 Leu Gln Ala Thr Thr Val Ile Asp His Thr Ala Tyr Ile Phe Thr Ser  
                   130                  135                  140  
 Thr Ala Thr Leu Asp Asp Tyr Ala Glu Leu Ser Phe Thr Phe Leu Lys  
                   145                  150                  155                  160  
 Val Val Ser Ser Phe Gln Ile Arg Gly Gly Lys Glu Ala Thr Ser Gly  
                   165                  170                  175  
 Asp Ala Ile Leu Glu Lys Ala Leu Glu Ala Leu Gln Asn Glu Asn Lys  
                   180                  185                  190

&lt;210&gt;103

&lt;211&gt;163

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;103

Asn Ile Met Ala Asn Leu Asn Ala Asp Gly Lys Leu Lys Gln Ile Cys  
   1                  5                  10                  15  
 Asp Ala Leu Arg Leu Asp Thr Leu Lys Pro Ala Glu Asp Glu Ala Ala  
           20                  25                  30  
 Ala Leu Leu His Asn Ala Lys Glu Gln Ala Lys Arg Ile Ile Gln Glu  
           35                  40                  45  
 Ala Gln Glu Glu Ala Arg Lys Ile Leu Glu Thr Ala Glu Glu Arg Ala  
           50                  55                  60  
 His Gln Lys Ile Lys Gln Gly Glu Val Ala Leu Ser Gln Ala Gly Lys  
           65                  70                  75                  80  
 Arg Ala Leu Glu Ala Leu Lys Gln Ala Val Glu Asn Lys Ile Phe Arg  
                   85                  90                  95  
 Glu Ser Leu Val Glu Trp Leu Glu His Val Thr Thr Asp Pro Glu Val  
                   100                  105                  110  
 Ser Thr Lys Leu Ile Gln Ala Leu Val Gln Ala Leu Glu Ala Gln Gly  
                   115                  120                  125  
 Val Ser Gly Asn Leu Thr Ala Tyr Ile Gly Lys His Val Ser Pro Arg  
                   130                  135                  140  
 Ala Val Asn Glu Leu Leu Arg Lys Gly Cys Asn Asn Lys Asn Tyr Glu  
                   145                  150                  155                  160  
 Arg Lys Val

&lt;210&gt;104

&lt;211&gt;211

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;104

Ser His Glu Lys Ile Phe Ser Ile Phe Lys Val Val Val Met Thr Gln  
   1                  5                  10                  15  
 Tyr Tyr Phe Leu Ser Ser Phe Leu Pro Thr Gln Leu Pro Glu Ser Val  
           20                  25                  30  
 Pro Leu Phe Ser Ile Ser Asp Leu Asp Asp Leu Leu Tyr Leu Asn Leu  
           35                  40                  45  
 Ser Glu Asn Asp Leu Cys Asn Tyr Gly Leu Leu Lys Arg Phe Phe Asp  
           50                  55                  60  
 Phe Glu Asn Phe Ala Phe Phe Trp Ala Gly Lys Pro Ile Pro Phe Ser  
           65                  70                  75                  80  
 Phe Gly Glu Val Thr Gln Glu Asn Val Glu Arg Met Leu Ser Ser Gln  
                   85                  90                  95

Gln Trp Ser Asp Asp Asn Asp Phe Glu Asp Phe Phe Lys Asp Phe Leu  
 100 105 110  
 Met Asn His Lys Ser Ser Gln Asp Arg Leu Asn His Phe Ser Asp Leu  
 115 120 125  
 Phe Arg Glu Phe Leu Ser Tyr His Gln Thr Asn Ser Ser Lys Phe Leu  
 130 135 140  
 Gln Asp Tyr Phe Arg Phe Gln Gln Gln Leu Arg Val Val Leu Ala Gly  
 145 150 155 160  
 Phe Arg Ala Arg Val Leu Asn Met Asp Val Ser Tyr Val Leu Arg Asp  
 165 170 175  
 Glu Asp Ser Ser Asp Pro Val Val Leu Glu Val Leu Met Gln Lys Asp  
 180 185 190  
 Ser Pro Asn Tyr Glu Xaa Pro Glu Glu Phe Xaa Asp Leu Gln Gly Val  
 195 200 205  
 Leu Asp Asp  
 210  
 <210>105  
 <211>440  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>105  
 Lys Arg Gln Ser Asn Gly Asn Ser Phe Arg Thr Lys Leu Ala Gln Gly  
 1 5 10 15  
 His Val Ile Glu Ala Tyr Gly Asn Leu Leu Arg Val Arg Phe Asp Gly  
 20 25 30  
 Tyr Val Arg Gln Gly Glu Val Ala Tyr Val Asn Val Asp Asn Thr Trp  
 35 40 45  
 Leu Lys Ala Glu Val Ile Glu Val Ala Asp Gln Glu Val Lys Val Gln  
 50 55 60  
 Val Phe Glu Asp Thr Gln Gly Ala Cys Arg Gly Ala Leu Val Thr Phe  
 65 70 75 80  
 Ser Gly His Leu Leu Glu Ala Glu Leu Gly Pro Gly Leu Leu Gln Gly  
 85 90 95  
 Ile Phe Asp Gly Leu Gln Asn Arg Leu Glu Val Leu Ala Glu Asp Ser  
 100 105 110  
 Ser Phe Leu Gln Arg Gly Lys His Val Asn Ala Ile Ser Asp His Asn  
 115 120 125  
 Leu Trp Asn Tyr Thr Pro Val Ala Ser Val Gly Asp Thr Leu Arg Arg  
 130 135 140  
 Gly Asp Leu Leu Gly Thr Val Pro Glu Gly Arg Phe Thr His Lys Ile  
 145 150 155 160  
 Met Val Pro Phe Ser Cys Phe Gln Glu Val Thr Leu Thr Trp Val Ile  
 165 170 175  
 Ser Glu Gly Thr Tyr Asn Ala His Thr Val Val Ala Lys Ala Arg Asp  
 180 185 190  
 Ala Gln Gly Lys Glu Cys Ala Phe Thr Met Val Gln Arg Trp Pro Ile  
 195 200 205  
 Lys Gln Ala Phe Ile Glu Gly Glu Lys Ile Pro Ala His Lys Ile Met  
 210 215 220  
 Asp Val Gly Leu Arg Ile Leu Asp Thr Gln Ile Pro Val Leu Lys Gly  
 225 230 235 240  
 Gly Thr Phe Cys Thr Pro Gly Pro Phe Gly Ala Gly Lys Thr Val Leu  
 245 250 255  
 Gln His His Leu Ser Lys Tyr Ala Ala Val Asp Ile Val Ile Leu Cys  
 260 265 270  
 Ala Cys Gly Glu Arg Ala Gly Glu Val Val Glu Val Leu Gln Glu Phe  
 275 280 285  
 Pro His Leu Ile Asp Pro His Thr Gly Lys Ser Leu Met His Arg Thr  
 290 295 300  
 Cys Ile Ile Cys Asn Thr Ser Ser Met Pro Val Ala Ala Arg Glu Ser  
 305 310 315 320  
 Ser Ile Tyr Leu Gly Val Thr Ile Ala Glu Tyr Tyr Arg Gln Met Gly  
 325 330 335  
 Leu Asp Ile Leu Leu Leu Ala Asp Ser Thr Ser Arg Trp Ala Gln Ala

340 345 350  
 Leu Arg Glu Ile Ser Gly Arg Leu Glu Glu Ile Pro Gly Glu Glu Ala  
 355 360 365  
 Phe Pro Ala Tyr Leu Ser Ser Arg Ile Ala Ala Phe Tyr Glu Arg Gly  
 370 375 380  
 Gly Ala Ile Thr Thr Lys Asp Gly Ser Glu Gly Ser Leu Thr Ile Cys  
 385 390 395 400  
 Gly Ala Val Ser Pro Ala Gly Gly Asn Phe Glu Glu Pro Val Thr Gln  
 405 410 415  
 Ser Thr Leu Ala Val Val Gly Ala Phe Cys Gly Leu Ser Lys Ala Arg  
 420 425 430  
 Leu Thr His Val Gly Ile Leu Gln  
 435 440

&lt;210&gt;106

&lt;211&gt;185

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;106

Arg Thr Ser His Ser Ile Tyr Ile Ser Cys Ser Arg Ser Val Leu Trp  
 1 5 10 15  
 Ser Phe Lys Ser Thr Thr Asp Ala Arg Arg Tyr Pro Ser Ile Asp Pro  
 20 25 30  
 Leu Ile Ser Trp Ser Lys Tyr Leu Asn Gln Val Gly Gln Ile Leu Glu  
 35 40 45  
 Glu Lys Val Ser Gly Trp Gly Gly Ala Val Lys Lys Ala Ala Gln Phe  
 50 55 60  
 Leu Glu Lys Gly Ser Glu Ile Gly Lys Arg Met Glu Val Val Gly Glu  
 65 70 75 80  
 Glu Gly Val Ser Met Glu Asp Met Glu Ile Tyr Leu Lys Ala Glu Leu  
 85 90 95  
 Tyr Asp Phe Cys Tyr Leu Gln Gln Asn Ala Phe Asp Pro Val Asp Cys  
 100 105 110  
 Tyr Cys Pro Phe Glu Arg Gln Ile Glu Leu Phe Ser Leu Ile Sér Arg  
 115 120 125  
 Ile Phe Asp Ala Lys Phe Val Phe Asp Ser Pro Asp Asp Ala Arg Ser  
 130 135 140  
 Phe Phe Leu Glu Leu Gln Ser Lys Ile Lys Thr Leu Asn Gly Leu Lys  
 145 150 155 160  
 Phe Leu Ser Glu Glu Tyr His Glu Ser Lys Glu Val Ile Val Arg Leu  
 165 170 175  
 Leu Glu Lys Thr Met Val Gln Met Ala  
 180 185

&lt;210&gt;107

&lt;211&gt;438

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;107

Met Gln Thr Ile Tyr Thr Lys Ile Thr Asp Ile Lys Gly Asn Leu Ile  
 1 5 10 15  
 Thr Val Glu Ala Glu Gly Ala Arg Leu Gly Glu Leu Ala Thr Ile Thr  
 20 25 30  
 Arg Ser Asp Gly Arg Ser Ser Tyr Ala Ser Val Leu Arg Phe Asp Leu  
 35 40 45  
 Lys Lys Val Thr Leu Gln Val Phe Gly Gly Thr Ser Gly Leu Ser Thr  
 50 55 60  
 Gly Asp His Val Thr Phe Leu Gly Arg Pro Met Glu Val Thr Phe Gly  
 65 70 75 80  
 Ser Ser Leu Leu Gly Arg Arg Leu Asn Gly Ile Gly Lys Pro Ile Asp  
 85 90 95  
 Asn Glu Gly Glu Cys Phe Gly Glu Pro Ile Glu Ile Ala Thr Pro Thr  
 100 105 110  
 Phe Asn Pro Val Cys Arg Ile Val Pro Arg Ser Met Val Arg Thr Asn  
 115 120 125  
 Ile Pro Met Ile Asp Val Phe Asn Cys Leu Val Lys Ser Gln Lys Ile

|                         |                         |                     |
|-------------------------|-------------------------|---------------------|
| 130                     | 135                     | 140                 |
| Pro Ile Phe Ser Ser Ser | Gly Glu His His Asn     | Ala Leu Leu Met Arg |
| 145                     | 150                     | 155                 |
| Ile Ala Ala Gln Thr Asp | Ala Asp Ile Val Val     | Ile Gly Gly Met Gly |
|                         | 165                     | 170                 |
| Leu Thr Phe Val Asp Tyr | Ser Phe Phe Val Glu Glu | Ser Lys Lys Leu     |
|                         | 180                     | 185                 |
| Gly Phe Ala Asp Lys Cys | Val Met Phe Ile His     | Lys Ala Val Asp Ala |
|                         | 195                     | 200                 |
| Pro Val Glu Cys Val Leu | Val Pro Asp Met Ala     | Leu Ala Cys Ala Glu |
|                         | 210                     | 215                 |
| Lys Phe Ala Val Glu Glu | Lys Lys Asn Val Leu     | Val Leu Leu Thr Asp |
| 225                     | 230                     | 235                 |
| Met Thr Ala Phe Ala Asp | Ala Leu Lys Glu Ile     | Ser Ile Thr Met Asp |
|                         | 245                     | 250                 |
| Gln Ile Pro Ala Asn Arg | Gly Tyr Pro Gly Ser     | Leu Tyr Ser Asp Leu |
|                         | 260                     | 265                 |
| Ala Leu Arg Tyr Glu Lys | Ala Val Glu Ile Ala     | Asp Gly Gly Ser Ile |
|                         | 275                     | 280                 |
| Thr Leu Ile Thr Val Thr | Thr Met Pro Ser Asp     | Asp Ile Thr His Pro |
| 290                     | 295                     | 300                 |
| Val Pro Asp Asn Thr Gly | Tyr Ile Thr Glu Gly     | Gln Phe Tyr Leu Arg |
| 305                     | 310                     | 315                 |
| Asn Asn Arg Ile Asp Pro | Phe Gly Ser Leu Ser     | Arg Leu Lys Gln Leu |
|                         | 325                     | 330                 |
| Val Ile Gly Lys Val Thr | Arg Glu Asp His Gly     | Asp Leu Ala Asn Ala |
|                         | 340                     | 345                 |
| Leu Ile Arg Leu Tyr Ala | Asp Ser Arg Lys Ala     | Thr Glu Arg Met Ala |
|                         | 355                     | 360                 |
| Met Gly Phe Lys Leu Ser | Asn Trp Asp Lys Lys     | Leu Leu Ala Phe Ser |
|                         | 370                     | 375                 |
| Glu Leu Phe Glu Thr Arg | Leu Met Ser Leu Glu     | Val Asn Ile Pro Leu |
| 385                     | 390                     | 395                 |
| Glu Glu Ala Leu Asp Ile | Gly Trp Lys Ile Leu     | Ala Gln Ser Phe Thr |
|                         | 405                     | 410                 |
| Ser Glu Glu Val Gly Ile | Lys Ala Gln Leu Ile     | Asn Lys Tyr Trp Pro |
|                         | 420                     | 425                 |
| Lys Ala Cys Leu Ser Lys |                         | 430                 |
|                         | 435                     |                     |

&lt;210&gt;108

&lt;211&gt;214

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;108

|                         |                     |                     |
|-------------------------|---------------------|---------------------|
| Val Leu Ala Lys Ser Met | Ser Val Gln Val Lys | Leu Thr Lys Asn Ser |
| 1                       | 5                   | 10                  |
| Phe Arg Leu Glu Lys Gln | Lys Leu Ala Arg Leu | Gln Thr Tyr Leu Pro |
|                         | 20                  | 25                  |
| Thr Leu Lys Leu Lys Lys | Ala Leu Leu Gln Ala | Glu Val Gln Asn Ala |
|                         | 35                  | 40                  |
| Val Lys Asp Ala Ala Glu | Cys Asp Lys Asp Tyr | Val Gln Ala Tyr Glu |
|                         | 50                  | 55                  |
| Arg Ile Tyr Ala Phe Ala | Glu Leu Phe Ser Ile | Pro Leu Cys Thr Asp |
|                         | 65                  | 70                  |
| Cys Val Glu Lys Ser Phe | Glu Ile Gln Ser Ile | Asp Asn Asp Phe Glu |
|                         | 85                  | 90                  |
| Asn Ile Ala Gly Val Glu | Val Pro Ile Val Arg | Glu Val Thr Leu Phe |
|                         | 100                 | 105                 |
| Pro Ala Ser Tyr Ser Leu | Leu Gly Thr Pro Ile | Trp Leu Asp Thr Met |
|                         | 115                 | 120                 |
| Leu Ser Ala Ser Lys Glu | Leu Val Val Lys Lys | Val Met Ala Glu Val |
|                         | 130                 | 135                 |
| Ser Lys Glu Arg Leu Lys | Ile Leu Glu Glu Glu | Leu Arg Ala Val Ser |
| 145                     | 150                 | 155                 |
|                         |                     | 160                 |



Ile Arg Val Asn Leu Phe Glu Lys Lys Leu Ile Pro Glu Thr Thr Lys  
 165 170 175  
 Ile Leu Lys Lys Ile Ala Val Phe Leu Ser Asp Arg Ser Ile Thr Asp  
 180 185 190  
 Val Gly Gln Val Lys Met Ala Lys Lys Lys Ile Glu Leu Arg Lys Ala  
 195 200 205  
 Arg Gly Asp Glu Cys Val  
 210  
 <210>109  
 <211>660  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>109  
 Val Arg Leu Asn Ile His Lys Tyr Leu Phe Ile Gly Arg Asn Lys Ala  
 1 5 10 15  
 Asp Phe Phe Ser Ala Ser Arg Glu Leu Gly Val Val Glu Phe Ile Ser  
 20 25 30  
 Lys Lys Cys Phe Ile Thr Thr Glu Gln Gly His Arg Phe Val Glu Cys  
 35 40 45  
 Leu Lys Val Phe Asp His Leu Glu Ala Glu Tyr Ser Leu Glu Ala Leu  
 50 55 60  
 Glu Phe Val Lys Asp Glu Ser Val Ser Val Glu Asp Ile Val Ser Glu  
 65 70 75 80  
 Val Leu Thr Leu Asn Lys Glu Ile Lys Gly Leu Leu Glu Thr Val Lys  
 85 90 95  
 Ala Leu Arg Lys Glu Ile Val Arg Val Lys Pro Leu Gly Ala Phe Ser  
 100 105 110  
 Ser Ser Glu Ile Ala Glu Leu Ser Arg Lys Thr Gly Ile Ser Leu Arg  
 115 120 125  
 Phe Phe Tyr Arg Thr His Lys Asp Asn Glu Asp Leu Glu Glu Asp Ser  
 130 135 140  
 Pro Asn Val Phe Tyr Leu Ser Thr Ala Tyr Asn Phe Asp Tyr Tyr Leu  
 145 150 155 160  
 Val Leu Gly Val Val Asp Leu Pro Arg Asp Arg Tyr Thr Glu Ile Glu  
 165 170 175  
 Ala Pro Arg Ser Val Asn Glu Leu Gln Val Asp Leu Ala Asn Leu Gln  
 180 185 190  
 Arg Glu Ile Arg Asn Arg Ser Asp Arg Leu Cys Asp Leu Tyr Ala Tyr  
 195 200 205  
 Arg Arg Glu Val Leu Arg Gly Leu Cys Asn Tyr Asp Asn Glu Gln Arg  
 210 215 220  
 Leu His Gln Ala Lys Glu Cys Cys Glu Asp Leu Phe Asp Gly Lys Val  
 225 230 235 240  
 Phe Ala Val Ala Gly Trp Val Ile Val Asp Arg Ile Lys Glu Leu Gln  
 245 250 255  
 Ser Leu Cys Asn Arg Tyr Gln Ile Tyr Met Glu Arg Val Pro Val Asp  
 260 265 270  
 Pro Asp Glu Thr Ile Pro Thr Tyr Leu Glu Asn Lys Gly Val Gly Val  
 275 280 285  
 Met Gly Glu Asp Leu Val Gln Ile Tyr Asp Thr Pro Ala Tyr Ser Asp  
 290 295 300  
 Lys Asp Pro Ser Thr Trp Val Phe Phe Ala Phe Val Leu Phe Phe Ser  
 305 310 315 320  
 Met Ile Val Asn Asp Ala Gly Tyr Gly Leu Leu Phe Leu Met Ser Ser  
 325 330 335  
 Leu Leu Phe Ser Trp Lys Phe Arg Arg Lys Met Lys Phe Ser Lys His  
 340 345 350  
 Leu Ser Arg Met Leu Lys Met Thr Ala Ile Leu Gly Leu Gly Cys Ile  
 355 360 365  
 Cys Trp Gly Thr Thr Thr Thr Ser Phe Phe Gly Met Ser Phe Ser Lys  
 370 375 380  
 Thr Ser Val Phe Arg Glu Tyr Ser Met Thr His Val Leu Ala Leu Lys  
 385 390 395 400  
 Lys Ala Glu Tyr Tyr Leu Gln Met Arg Pro Lys Ala Tyr Lys Glu Leu

405 410 415  
 Thr Asn Glu Tyr Pro Ser Leu Lys Ala Ile Arg Asp Pro Lys Ala Phe  
 420 425 430  
 Leu Leu Ala Thr Glu Ile Gly Ser Ala Gly Ile Glu Ser Arg Tyr Val  
 435 440 445  
 Val Tyr Asp Lys Phe Ile Asp Asn Ile Leu Met Glu Leu Ala Leu Phe  
 450 455 460  
 Ile Gly Val Val His Leu Ser Leu Gly Met Leu Arg Tyr Leu Arg Tyr  
 465 470 475 480  
 Arg Tyr Ser Gly Ile Gly Trp Ile Leu Phe Met Val Ser Ala Tyr Leu  
 485 490 495  
 Tyr Val Pro Ile Tyr Leu Gly Thr Val Ser Leu Ile His Tyr Leu Phe  
 500 505 510  
 His Val Pro Tyr Glu Leu Gly Gly Gln Ile Gly Tyr Tyr Gly Met Phe  
 515 520 525  
 Gly Gly Ile Gly Leu Ala Val Val Leu Ala Met Ile Gln Arg Ser Trp  
 530 535 540  
 Arg Gly Val Glu Glu Ile Ile Ser Val Ile Gln Val Phe Ser Asp Val  
 545 550 555 560  
 Leu Ser Tyr Leu Arg Ile Tyr Ala Leu Gly Leu Ala Gly Ala Met Met  
 565 570 575  
 Gly Ala Thr Phe Asn Gln Met Gly Ala Arg Leu Pro Met Leu Leu Gly  
 580 585 590  
 Ser Ile Val Ile Leu Leu Gly His Ser Val Asn Ile Ile Leu Ser Ile  
 595 600 605  
 Met Gly Gly Val Ile His Gly Leu Arg Leu Asn Phe Ile Glu Trp Tyr  
 610 615 620  
 His Tyr Ser Phe Asp Gly Gly Arg Pro Leu Arg Pro Leu Arg Lys  
 625 630 635 640  
 Ile Val Cys Ser Glu Asp Ala Glu Ala Ser Gly Ile His Leu Asp Asn  
 645 650 655  
 Asn Ser Ile Val  
 660

&lt;210&gt;110

&lt;211&gt;149

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;110

Leu Lys Gly Ala His Glu Val Ser Met Ile Asp Met Ser Val Val Gly  
 1 5 10 15  
 Pro Ala Leu Val Leu Gly Leu Ala Met Ile Gly Ser Ala Ile Gly Cys  
 20 25 30  
 Gly Met Ala Gly Val Ala Ser His Ala Val Met Ser Arg Ile Asp Glu  
 35 40 45  
 Gly His Gly Lys Leu Ile Gly Met Ser Ala Met Pro Ser Ser Gln Ser  
 50 55 60  
 Ile Tyr Gly Phe Ile Leu Met Leu Leu Met Gln Ala Ala Ile Lys Asn  
 65 70 75 80  
 Gly Thr Leu Ser Pro Val Gly Gly Ile Ala Ile Gly Leu Ser Val Gly  
 85 90 95  
 Ala Ala Leu Leu Val Ser Ser Val Met Gln Gly Lys Cys Cys Val Ser  
 100 105 110  
 Gly Ile Gln Ala Tyr Ala Arg Ser Ser Ser Ile Tyr Gly Lys Cys Tyr  
 115 120 125  
 Ala Ala Ile Gly Ile Val Glu Ser Phe Ser Leu Phe Ala Val Val Phe  
 130 135 140  
 Ala Leu Leu Leu Leu

145

&lt;210&gt;111

&lt;211&gt;940

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;111

Met Thr Thr Glu Asp Phe Pro Lys Ala Tyr Asn Phe Gln Asp Thr Glu

|   |     |     |     |
|---|-----|-----|-----|
| 1   | 5   | 10  | 15  |
| Pro Glu Leu Tyr Val Phe Trp Glu Lys Asn Gly Met Phe Lys Ala Glu |     |     |     |
| 20  | 25  | 30  |     |
| Ala Ser Ser Asp Lys Pro Pro Tyr Ser Val Ile Met Pro Pro Pro Asn |     |     |     |
| 35  | 40  | 45  |     |
| Val Thr Gly Val Leu His Met Gly His Ala Leu Val Asn Thr Leu Gln |     |     |     |
| 50  | 55  | 60  |     |
| Asp Val Leu Val Arg Tyr Lys Arg Met Ser Gly Phe Glu Val Cys Trp |     |     |     |
| 65  | 70  | 75  | 80  |
| Ile Pro Gly Thr Asp His Ala Gly Ile Ala Thr Gln Ala Val Val Glu |     |     |     |
| 85  | 90  | 95  |     |
| Arg His Leu Gln Ala Ser Glu Gly Lys Arg Arg Thr Asp Tyr Ser Arg |     |     |     |
| 100   | 105 | 110 |     |
| Glu Asp Phe Leu Lys His Ile Trp Ala Trp Lys Glu Lys Ser Glu Lys |     |     |     |
| 115   | 120 | 125 |     |
| Val Val Leu Ser Gln Leu Arg Gln Leu Gly Cys Ser Cys Asp Trp Asp |     |     |     |
| 130   | 135 | 140 |     |
| Arg Lys Arg Phe Thr Met Glu Pro Leu Ala Asn Arg Ala Val Lys Lys |     |     |     |
| 145   | 150 | 155 | 160 |
| Ala Phe Lys Thr Leu Phe Glu Asn Gly Tyr Ile Tyr Arg Gly Tyr Tyr |     |     |     |
| 165   | 170 | 175 |     |
| Leu Val Asn Trp Asp Pro Val Leu Gln Thr Ala Leu Ala Asp Asp Glu |     |     |     |
| 180   | 185 | 190 |     |
| Val Glu Tyr Glu Glu Lys Asp Gly Trp Leu Tyr Tyr Ile Arg Tyr Arg |     |     |     |
| 195   | 200 | 205 |     |
| Met Val Gly Ser Gln Glu Ser Ile Val Val Ala Thr Thr Arg Pro Glu |     |     |     |
| 210   | 215 | 220 |     |
| Thr Ser Leu Gly Asp Thr Gly Ile Ala Val Ser Pro Asn Asp Glu Arg |     |     |     |
| 225   | 230 | 235 | 240 |
| Tyr Ala Ser Trp Ile Gly Ala Ser Val Glu Val Pro Phe Val Asn Arg |     |     |     |
| 245   | 250 | 255 |     |
| Gln Ile Pro Ile Ile Gly Asp Ala Ser Val Asp Pro Thr Phe Gly Thr |     |     |     |
| 260   | 265 | 270 |     |
| Gly Ala Val Lys Val Thr Pro Ala His Asp Lys Asp Asp Tyr Leu Met |     |     |     |
| 275   | 280 | 285 |     |
| Gly Thr Asn His His Leu Pro Met Ile Asn Ile Leu Thr Pro Ser Gly |     |     |     |
| 290   | 295 | 300 |     |
| Gly Ile Asn Glu Asn Gly Gly Pro Phe Ala Gly Met Ala Lys Glu Lys |     |     |     |
| 305   | 310 | 315 | 320 |
| Ala Arg Glu Glu Ile Leu Ile Ala Leu Glu Glu Gln Gly Leu Phe Val |     |     |     |
| 325   | 330 | 335 |     |
| Arg Lys Glu Pro Tyr Lys Leu Arg Val Gly Val Ser Tyr Arg Ser Gly |     |     |     |
| 340   | 345 | 350 |     |
| Ala Val Ile Glu Pro Tyr Leu Ser Lys Gln Trp Phe Val Ser Val Ser |     |     |     |
| 355   | 360 | 365 |     |
| Glu Phe Arg Gly Ala Leu Arg Glu Phe Val Glu Ser Gln Asp Ile Lys |     |     |     |
| 370   | 375 | 380 |     |
| Ile Phe Pro Lys Asp Phe Val Lys Asn Tyr Leu Ser Trp Val Asn His |     |     |     |
| 385   | 390 | 395 | 400 |
| Leu Arg Asp Trp Cys Ile Ser Arg Gln Leu Trp Trp Gly His Arg Ile |     |     |     |
| 405   | 410 | 415 |     |
| Pro Val Trp Tyr His Lys Asn His Asp Glu Arg Val Leu Cys Tyr Asp |     |     |     |
| 420   | 425 | 430 |     |
| Gly Glu Gly Ile Pro Glu Glu Val Ala Gln Asp Pro Asp Ser Trp Tyr |     |     |     |
| 435   | 440 | 445 |     |
| Gln Asp Pro Asp Val Leu Asp Thr Trp Phe Ser Ser Gly Leu Trp Pro |     |     |     |
| 450   | 455 | 460 |     |
| Leu Thr Cys Leu Gly Trp Pro Asp Glu Asn Ser Pro Asp Leu Lys Lys |     |     |     |
| 465   | 470 | 475 | 480 |
| Phe Tyr Pro Thr Ala Leu Leu Val Thr Gly His Asp Ile Leu Phe Phe |     |     |     |
| 485   | 490 | 495 |     |
| Trp Val Thr Arg Met Val Leu Leu Cys Ser Ser Met Ser Gly Glu Lys |     |     |     |
| 500   | 505 | 510 |     |
| Pro Phe Ser Glu Val Phe Leu His Gly Leu Ile Phe Gly Lys Ser Tyr |     |     |     |

515 520 525  
 Lys Arg Tyr Asn Asp Phe Gly Glu Trp Ser Tyr Ile Ser Gly Lys Glu  
 530 535 540  
 Lys Leu Ala Tyr Asp Met Gly Glu Ala Leu Pro Asp Gly Val Val Ala  
 545 550 555 560  
 Lys Trp Glu Lys Leu Ser Lys Ser Lys Gly Asn Val Ile Asp Pro Leu  
 565 570 575  
 Glu Met Ile Ala Thr Tyr Gly Thr Asp Ala Val Arg Leu Thr Leu Cys  
 580 585 590  
 Ser Cys Ala Asn Arg Gly Glu Gln Ile Asp Leu Asp Tyr Arg Leu Phe  
 595 600 605  
 Glu Glu Tyr Lys His Phe Ala Asn Lys Val Trp Asn Gly Ala Arg Phe  
 610 615 620  
 Ile Phe Gly His Ile Ser Asp Leu Gln Gly Lys Asp Leu Leu Ala Gly  
 625 630 635 640  
 Ile Asp Glu Asp Ser Leu Gly Leu Glu Asp Phe Tyr Ile Leu Asp Gly  
 645 650 655  
 Phe Asn Gln Leu Ile His Gln Leu Glu Glu Ala Tyr Ala Thr Tyr Ala  
 660 665 670  
 Phe Asp Lys Val Ala Thr Leu Ala Tyr Glu Phe Phe Arg Asn Asp Leu  
 675 680 685  
 Cys Ser Thr Tyr Ile Glu Ile Ile Lys Pro Thr Leu Phe Gly Lys Gln  
 690 695 700  
 Gly Asn Glu Ala Ser Gln Ser Thr Lys Arg Thr Leu Leu Ala Val Leu  
 705 710 715 720  
 Leu Ile Asn Val Leu Gly Val Leu His Pro Val Ala Pro Phe Ile Thr  
 725 730 735  
 Glu Ser Leu Phe Leu Arg Ile Gln Asp Thr Leu Gly Ala Leu Pro Glu  
 740 745 750  
 Gly Asp Gly Asp Ala Phe Thr Gly His Ala Leu Arg Met Leu Arg Ser  
 755 760 765  
 Arg Ala Cys Met Glu Ala Pro Tyr Pro Lys Ala Phe Asp Val Lys Ile  
 770 775 780  
 Pro Gln Asp Leu Arg Glu Ser Phe Thr Leu Ala Gln Arg Leu Val Tyr  
 785 790 795 800  
 Thr Ile Arg Asn Ile Arg Gly Glu Met Gln Leu Asp Pro Arg Leu His  
 805 810 815  
 Leu Lys Ala Phe Val Val Cys Ser Asp Thr Thr Glu Ile Gln Ser Cys  
 820 825 830  
 Ile Pro Ile Leu Gln Ala Leu Gly Gly Leu Glu Ser Ile Gln Leu Leu  
 835 840 845  
 Asp Lys Glu Pro Glu Lys Gly Leu Tyr Ser Phe Gly Val Val Asp Thr  
 850 855 860  
 Ile Arg Leu Gly Ile Phe Val Pro Glu Glu His Leu Leu Lys Glu Lys  
 865 870 875 880  
 Gly Arg Leu Glu Lys Glu Arg Val Arg Leu Glu Arg Ala Val Glu Asn  
 885 890 895  
 Leu Glu Arg Leu Leu Gly Asp Glu Ser Phe Cys Gln Lys Ala Asn Pro  
 900 905 910  
 Asn Leu Val Val Ala Lys Gln Glu Ala Leu Lys Asn Asn Arg Ile Glu  
 915 920 925  
 Leu Gln Gly Ile Leu Asp Lys Leu Ala Ser Phe Ala  
 930 935 940  
 <210>112  
 <211>945  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>112  
 Ala Cys Ile Val Cys Leu Asp Arg Glu Asp Gln Arg Ser Leu Glu Arg  
 1 5 10 15  
 Tyr Asp Ile Val Arg Ile Ile Gly Lys Gly Gly Met Gly Glu Val Tyr  
 20 25 30  
 Leu Ala Tyr Asp Pro Val Cys Ser Arg Lys Val Ala Leu Lys Lys Ile  
 35 40 45

Arg Glu Asp Leu Ala Glu Asn Pro Leu Leu Lys Arg Arg Phe Leu Arg  
 50 55 60  
 Glu Ala Arg Ile Ala Ala Asp Leu Ile His Pro Gly Val Val Pro Val  
 65 70 75 80  
 Tyr Thr Ile Tyr Ser Glu Lys Asp Pro Val Tyr Tyr Thr Met Pro Tyr  
 85 90 95  
 Ile Glu Gly Tyr Thr Leu Lys Thr Leu Leu Lys Ser Val Trp Gln Lys  
 100 105 110  
 Glu Ser Leu Ser Lys Glu Leu Ala Glu Lys Thr Ser Val Gly Ala Phe  
 115 120 125  
 Leu Ser Ile Phe His Lys Ile Cys Cys Thr Ile Glu Tyr Val His Ser  
 130 135 140  
 Arg Gly Ile Leu His Arg Asp Leu Lys Pro Asp Asn Ile Leu Leu Gly  
 145 150 155 160  
 Leu Phe Ser Glu Ala Val Ile Leu Asp Trp Gly Ala Ala Val Ala Cys  
 165 170 175  
 Gly Glu Glu Glu Asp Leu Leu Asp Ile Asp Val Ser Lys Glu Glu Val  
 180 185 190  
 Leu Ser Ser Arg Met Thr Ile Pro Gly Arg Ile Val Gly Thr Pro Asp  
 195 200 205  
 Tyr Met Ala Pro Glu Arg Leu Leu Gly His Pro Ala Ser Lys Ser Thr  
 210 215 220  
 Asp Ile Tyr Ala Leu Gly Val Val Leu Tyr Gln Met Leu Thr Leu Ser  
 225 230 235 240  
 Phe Pro Tyr Arg Arg Lys Lys Gly Lys Lys Ile Val Leu Asp Gly Gln  
 245 250 255  
 Arg Ile Pro Ser Pro Gln Glu Val Ala Pro Tyr Arg Glu Ile Pro Pro  
 260 265 270  
 Phe Leu Ser Ala Val Val Met Arg Met Leu Ala Val Asp Pro Gln Glu  
 275 280 285  
 Arg Tyr Ser Ser Val Thr Glu Leu Lys Glu Asp Ile Glu Ser His Leu  
 290 295 300  
 Lys Gly Ser Pro Lys Trp Thr Leu Thr Thr Ala Leu Pro Pro Lys Lys  
 305 310 315 320  
 Ser Ser Ser Trp Lys Leu Asn Glu Pro Ile Leu Leu Ser Lys Tyr Phe  
 325 330 335  
 Pro Met Leu Glu Val Ser Pro Ala Ser Trp Tyr Ser Leu Ala Ile Ser  
 340 345 350  
 Asn Ile Glu Ser Phe Ser Glu Met Arg Leu Glu Tyr Thr Leu Ser Lys  
 355 360 365  
 Lys Gly Leu Asn Glu Gly Phe Gly Ile Leu Leu Pro Thr Ser Glu Asn  
 370 375 380  
 Ala Leu Gly Gly Asp Phe Tyr Gln Gly Tyr Gly Phe Trp Leu His Ile  
 385 390 395 400  
 Lys Glu Arg Thr Leu Ser Val Ser Leu Val Lys Asn Ser Leu Glu Ile  
 405 410 415  
 Gln Arg Cys Ser Gln Asp Leu Glu Ser Asp Lys Glu Thr Phe Leu Ile  
 420 425 430  
 Ala Leu Glu Gln His Asn His Ser Leu Ser Leu Phe Val Asp Gly Thr  
 435 440 445  
 Thr Trp Leu Ile His Met Asn Tyr Leu Pro Ser Arg Ser Gly Arg Val  
 450 455 460  
 Ala Ile Ile Val Arg Asp Met Glu Asp Ile Leu Glu Asp Ile Gly Ile  
 465 470 475 480  
 Phe Glu Ser Ser Gly Ser Leu Arg Val Ser Cys Leu Ala Val Pro Asp  
 485 490 495  
 Ala Phe Leu Ala Glu Lys Leu Tyr Asp Arg Ala Leu Val Leu Tyr Arg  
 500 505 510  
 Arg Ile Ala Glu Ser Phe Pro Gly Arg Lys Glu Gly Tyr Glu Ala Arg  
 515 520 525  
 Phe Arg Ala Gly Ile Thr Val Leu Glu Lys Ala Ser Thr Asp Asn Asn  
 530 535 540  
 Glu Gln Glu Phe Ala Leu Ala Ile Glu Glu Phe Ser Lys Leu His Asp  
 545 550 555 560

Gly Val Ala Ala Pro Leu Glu Tyr Leu Gly Lys Ala Leu Val Tyr Gln  
 565 570 575  
 Arg Leu Gln Glu Tyr Asn Glu Glu Ile Lys Ser Leu Leu Leu Ala-Leu  
 580 585 590  
 Lys Arg Tyr Ser Gln His Pro Glu Ile Phe Arg Leu Lys Asp His Val  
 595 600 605  
 Val Tyr Arg Leu His Glu Ser Phe Tyr Lys Arg Asp Arg Leu Ala Leu  
 610 615 620  
 Val Phe Met Ile Leu Val Leu Glu Ile Ala Pro Gln Ala Ile Thr Pro  
 625 630 635 640  
 Gly Gln Glu Glu Lys Ile Leu Val Trp Leu Lys Asp Lys Ser Arg Ala  
 645 650 655  
 Thr Leu Phe Cys Leu Leu Asp Pro Thr Val Leu Glu Leu Arg Ser Ser  
 660 665 670  
 Lys Met Glu Leu Phe Leu Ser Tyr Trp Ser Gly Phe Ile Pro His Leu  
 675 680 685  
 Asn Ser Leu Phe His Arg Ala Trp Asp Gln Ser Asp Val Arg Ala Leu  
 690 695 700  
 Ile Glu Ile Phe Tyr Val Ala Cys Asp Leu His Lys Trp Gln Phe Leu  
 705 710 715 720  
 Ser Ser Cys Ile Asp Ile Phe Lys Glu Ser Leu Glu Asp Gln Lys Ala  
 725 730 735  
 Thr Glu Glu Ile Val Glu Phe Ser Phe Glu Asp Leu Gly Ala Phe Leu  
 740 745 750  
 Phe Ala Ile Gln Ser Ile Phe Asn Lys Glu Asp Ala Glu Lys Ile Phe  
 755 760 765  
 Val Ser Asn Asp Gln Leu Ser Pro Ile Leu Leu Val Tyr Ile Phe Asp  
 770 775 780  
 Leu Phe Ala Asn Arg Ala Leu Leu Glu Ser Gln Gly Glu Ala Ile Phe  
 785 790 795 800  
 Gln Ala Leu Asp Leu Ile Arg Ser Lys Val Pro Glu Asn Phe Tyr His  
 805 810 815  
 Asp Tyr Leu Arg Asn His Glu Ile Arg Ala His Leu Trp Cys Arg Asn  
 820 825 830  
 Glu Lys Ala Leu Ser Thr Ile Phe Glu Asn Tyr Thr Glu Lys Gln Leu  
 835 840 845  
 Lys Asp Glu Gln His Glu Leu Phe Val Leu Tyr Gly Cys Tyr Leu Ala  
 850 855 860  
 Leu Ile Gln Gly Ala Glu Ala Ala Lys Gln His Phe Asp Val Cys Arg  
 865 870 875 880  
 Glu Asp Arg Ile Phe Pro Ala Ser Leu Leu Ala Arg Asn Tyr Asn Arg  
 885 890 895  
 Leu Gly Leu Pro Lys Asp Ala Leu Ser Tyr Gln Glu Arg Arg Leu Leu  
 900 905 910  
 Leu Arg Gln Lys Phe Leu Tyr Phe His Cys Leu Gly Asn His Asp Glu  
 915 920 925  
 Arg Asp Leu Cys Gln Thr Met Tyr His Leu Leu Thr Glu Glu Phe Gln  
 930 935 940

Leu

945

&lt;210&gt;113

&lt;211&gt;1826

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;113

Met Lys Ser Leu Pro Val Tyr Val Ser Gly Ile Lys Val Arg Asn Leu  
 1 5 10 15  
 Lys Asn Val Ser Ile His Phe Asn Ser Glu Glu Ile Val Leu Leu Thr  
 20 25 30  
 Gly Val Ser Gly Ser Gly Lys Ser Ile Ala Phe Asp Thr Leu Tyr  
 35 40 45  
 Ala Ala Gly Arg Lys Arg Tyr Ile Ser Thr Leu Pro Thr Phe Phe Ala  
 50 55 60  
 Thr Thr Ile Thr Thr Leu Pro Asn Pro Lys Val Glu Glu Ile His Gly

|   |     |     |     |
|---|-----|-----|-----|
| 65  | 70  | 75  | 80  |
| Leu Ser Pro Thr Ile Ala Ile Lys Gln Asn His Phe Ser His Tyr Ser |     |     |     |
|   | 85  | 90  | 95  |
| His Ala Thr Val Gly Ser Thr Thr Glu Leu Phe Ser His Leu Ala Leu |     |     |     |
|   | 100 | 105 | 110 |
| Leu Phe Thr Leu Glu Gly Gln Ala Arg Asp Pro Lys Thr Lys Glu Val |     |     |     |
|   | 115 | 120 | 125 |
| Leu Asp Leu Tyr Ser Lys Glu Lys Val Leu Ser Thr Ile Met Glu Leu |     |     |     |
|   | 130 | 135 | 140 |
| Ser Glu Gly Val Gln Ile Ser Ile Leu Ala Pro Leu Leu Arg Lys Asp |     |     |     |
| 145   | 150 | 155 | 160 |
| Ile Ala Ala Ile His Glu Tyr Ala Gln Gln Gly Phe Thr Lys Val Arg |     |     |     |
|   | 165 | 170 | 175 |
| Cys Asn Gly Thr Ile His Pro Ile Tyr Ser Phe Leu Thr Ser Gly Ile |     |     |     |
|   | 180 | 185 | 190 |
| Pro Glu Asp Cys Ser Val Asp Ile Val Ile Asp Thr Leu Ile Lys Ser |     |     |     |
|   | 195 | 200 | 205 |
| Glu Asn Asn Ile Ala Arg Leu Lys Val Ser Leu Phe Thr Ala Leu Glu |     |     |     |
|   | 210 | 215 | 220 |
| Phe Gly Glu Gly His Cys Ser Val Leu Ser Asp Glu Glu Leu Met Thr |     |     |     |
| 225   | 230 | 235 | 240 |
| Phe Ser Thr Lys Gln Gln Ile Asp Asp Val Thr Tyr Thr Pro Leu Thr |     |     |     |
|   | 245 | 250 | 255 |
| Gln Gln Leu Phe Ser Pro His Ala Leu Glu Ser Arg Cys Ser Leu Cys |     |     |     |
|   | 260 | 265 | 270 |
| Gln Gly Ser Gly Ile Phe Ile Ser Ile Asp Asn Pro Leu Leu Ile Asp |     |     |     |
|   | 275 | 280 | 285 |
| Glu Asn Leu Ser Ile Lys Glu Asn Cys Cys Ser Phe Ala Gly Asn Cys |     |     |     |
|   | 290 | 295 | 300 |
| Ser Ser Tyr Leu Tyr His Thr Ile Tyr Gln Ala Leu Ala Asp Ala Leu |     |     |     |
| 305   | 310 | 315 | 320 |
| Asn Phe Asn Leu Glu Thr Pro Trp Lys Asp Leu Ser Pro Glu Ile Gln |     |     |     |
|   | 325 | 330 | 335 |
| Asn Ile Phe Leu Arg Gly Lys Asn Asn Leu Val Leu Pro Val Arg Leu |     |     |     |
|   | 340 | 345 | 350 |
| Phe Asp Gln Thr Leu Gly Lys Lys Asn Leu Thr Tyr Lys Val Trp Arg |     |     |     |
|   | 355 | 360 | 365 |
| Gly Val Leu Asn Asp Ile Gly Asp Lys Val Arg Tyr Thr Thr Lys Pro |     |     |     |
|   | 370 | 375 | 380 |
| Ser Arg Tyr Leu Ser Lys Gly Met Ser Ala His Ser Cys Ser Leu Cys |     |     |     |
| 385   | 390 | 395 | 400 |
| Lys Gly Thr Gly Leu Gly Asp Tyr Ala Ser Val Ala Thr Trp Glu Gly |     |     |     |
|   | 405 | 410 | 415 |
| Lys Thr Phe Thr Glu Phe Gln Gln Met Ser Leu Asn Asn Trp His Val |     |     |     |
|   | 420 | 425 | 430 |
| Phe Phe Ser Lys Val Lys Ser Pro Ser Leu Ser Ile Gln Glu Ile Leu |     |     |     |
|   | 435 | 440 | 445 |
| Gln Gly Leu Lys Gln Arg Leu Ser Phe Leu Ile Asp Leu Gly Leu Gly |     |     |     |
|   | 450 | 455 | 460 |
| Tyr Leu Thr Pro Asn Arg Ala Leu Ala Thr Leu Ser Gly Gly Glu Gln |     |     |     |
| 465   | 470 | 475 | 480 |
| Glu Arg Thr Ala Ile Ala Lys His Leu Gly Gly Glu Leu Phe Gly Ile |     |     |     |
|   | 485 | 490 | 495 |
| Thr Tyr Ile Leu Asp Glu Pro Ser Ile Gly Leu His Pro Gln Asp Thr |     |     |     |
|   | 500 | 505 | 510 |
| Glu Lys Leu Ile Gly Val Ile Lys Lys Leu Arg Asp Gln Gly Asn Thr |     |     |     |
|   | 515 | 520 | 525 |
| Val Ile Leu Val Glu His Glu Glu Arg Met Ile Ser Leu Ala Asp Arg |     |     |     |
|   | 530 | 535 | 540 |
| Ile Ile Asp Ile Gly Pro Gly Ala Gly Ile Phe Gly Gly Glu Val Leu |     |     |     |
| 545   | 550 | 555 | 560 |
| Phe Asn Gly Lys Pro Glu Asp Phe Leu Met Asn Ser Ser Ser Leu Thr |     |     |     |
|   | 565 | 570 | 575 |
| Ala Lys Tyr Leu Arg Gln Glu Leu Thr Ile Pro Ile Pro Glu Ser Arg |     |     |     |

580 585 590  
 Glu Ala Pro Thr Ser Trp Leu Leu Leu Thr Glu Ala Thr Ile His Asn  
 595 600 605  
 Leu Lys Asn Leu Ser Ile Arg Leu Pro Leu Ala Arg Leu Ile Gly Val  
 610 615 620  
 Thr Gly Val Ser Gly Ser Gly Lys Ser Ser Leu Ile Asn Asn Thr Leu  
 625 630 635 640  
 Val Pro Ala Ile Glu Ser Phe Leu Lys Gln Glu Asn Pro Lys Asn Leu  
 645 650 655  
 His Phe Glu Trp Gly Cys Ile Gly Arg Leu Ile His Ile Thr Arg Asp  
 660 665 670  
 Leu Pro Gly Arg Ser Gln Arg Ser Ile Pro Leu Thr Tyr Ile Lys Ala  
 675 680 685  
 Phe Asp Asp Ile Arg Glu Leu Phe Ala Ser Gln Pro Arg Ser Leu Arg  
 690 695 700  
 Gln Gly Leu Thr Lys Ala His Phe Ser Phe Asn Gln Pro Gln Gly Ala  
 705 710 715 720  
 Cys Ile Gln Cys Gln Gly Leu Gly Thr Met Thr Ile Ser Asp Asp Asp  
 725 730 735  
 Thr Pro Ile Pro Cys Ser Glu Cys Gln Gly Lys Arg Tyr His Ser Glu  
 740 745 750  
 Val Leu Glu Ile Leu Tyr Glu Gly Lys Asn Ile Ala Asp Ile Leu Asp  
 755 760 765  
 Met Thr Ala Tyr Glu Ala Glu Lys Phe Phe Ile Ser His Pro Lys Ile  
 770 775 780  
 His Glu Lys Ile His Ala Leu Cys Ser Leu Arg Leu Asp Tyr Leu Pro  
 785 790 795 800  
 Leu Gly Arg Pro Leu Ser Thr Leu Ser Gly Glu Ile Gln Arg Leu  
 805 810 815  
 Lys Leu Ala His Glu Leu Leu Phe Ala Ser Pro Lys Gln Thr Leu Tyr  
 820 825 830  
 Val Leu Asp Glu Pro Thr Thr Gly Leu His Thr His Asp Ile Gln Ala  
 835 840 845  
 Leu Ile Glu Val Leu Leu Ser Leu Thr Tyr Leu Gly His Thr Val Leu  
 850 855 860  
 Val Ile Glu His Asn Met His Val Val Lys Val Cys Asp Tyr Val Leu  
 865 870 875 880  
 Glu Leu Gly Pro Glu Gly Gly Asp Leu Gly Gly Tyr Leu Leu Ala Ser  
 885 890 895  
 Cys Thr Pro Lys Asp Leu Ile Gln Leu Asn Thr Pro Thr Ala Lys Ala  
 900 905 910  
 Leu Ala Pro Tyr Ile Glu Gly Ser Leu Asp Ile Pro Val Val Lys Ser  
 915 920 925  
 Glu Pro Pro Ser Ser Pro Lys Ser Cys Asp Ile Leu Ile Lys Asp Ala  
 930 935 940  
 Tyr Gln Asn Asn Leu Lys His Ile Asp Leu Ala Leu Pro Arg Asn Ser  
 945 950 955 960  
 Leu Ile Ala Ile Ala Gly Pro Gly Ala Ser Gly Lys His Ser Leu Val  
 965 970 975  
 Phe Asp Ile Leu Tyr Ala Ser Gly Asn Ile Ala Tyr Ala Glu Leu Phe  
 980 985 990  
 Pro Pro Tyr Ile Arg Gln Gly Leu Leu Lys Glu Thr Pro Leu Pro Ser  
 995 1000 1005  
 Val Gly Glu Val Lys Gly Leu Ser Pro Val Ile Ser Val Arg Lys Cys  
 1010 1015 1020  
 Ser Ser Ser Asn Arg Ser Tyr His Thr Ile Ala Ser Ala Leu Gly Leu  
 1025 1030 1035 1040  
 Ser Asn Gly Leu Glu Lys Leu Phe Ala Ile Leu Gly Glu Pro Phe Ser  
 1045 1050 1055  
 Pro Leu Thr Glu Glu Lys Leu Ser Lys Thr Thr Pro Gln Thr Ile Ile  
 1060 1065 1070  
 Asp Ser Leu Leu Lys Ser Tyr Lys Asp Asp Tyr Val Thr Ile Thr Ser  
 1075 1080 1085  
 Pro Ile Pro Leu Gly Ser Asp Leu Glu Ile Phe Leu Gln Glu Lys Gln



|   |   |      |
|---|---|------|
| 1090  | 1095  | 1100 |
| Lys Glu Gly Phe Ile   | Lys Leu Tyr Ser Glu Gly Asn Leu Tyr Asp Leu |      |
| 1105  | 1110  | 1115 |
| Asp Glu Arg Leu Pro Leu Asn Leu Ile Glu Pro Ala Ile Val Ile Gln |   | 1120 |
|   | 1125  | 1130 |
| His Thr Lys Val Ser Pro Lys Asn Ser Ser Ser Leu Leu Ser Ala Ile |   | 1135 |
|   | 1140  | 1145 |
| Ser Val Ala Phe Ser Leu Ser Ser Glu Ile Trp Ile Tyr Ile Ser Gln |   | 1150 |
|   | 1155  | 1160 |
| Lys Lys Gln Arg Lys Leu Ser Tyr Ser Leu Gly Trp Lys Asp Lys Lys |   | 1165 |
|   | 1170  | 1175 |
| Gly Arg Leu Tyr Pro Glu Ile Thr His Gln Leu Leu Xaa Ser Asp His |   | 1180 |
| 1185  | 1190  | 1195 |
| Pro Glu Gly Arg Cys Leu Thr Cys Gly Gly Arg Gly Glu Ile Leu Lys |   | 1200 |
|   | 1205  | 1210 |
| Ile Ser Leu Glu Glu His Lys Glu Lys Ile Ala His Tyr Thr Pro Leu |   | 1215 |
|   | 1220  | 1225 |
| Glu Phe Phe Ser Leu Phe Phe Pro Lys Ser Tyr Met Lys Pro Val Gln |   | 1230 |
|   | 1235  | 1240 |
| Lys Leu Leu Lys Asp Glu Asn Ala Ser Gln Pro Leu Lys Leu Leu Thr |   | 1245 |
|   | 1250  | 1255 |
| Thr Lys Glu Phe Leu Asn Phe Cys Arg Gly Ser Ser Glu Phe Pro Gly |   | 1260 |
| 1265  | 1270  | 1275 |
| Met Asn Ala Leu Leu Met Glu Gln Leu Asp Thr Glu Ser Asp Ser Pro |   | 1280 |
|   | 1285  | 1290 |
| Leu Ile Lys Pro Leu Leu Ala Leu Thr Ser Cys Pro Ala Cys Lys Gly |   | 1295 |
|   | 1300  | 1305 |
| Ser Gly Leu Asn Asp Tyr Ala Asn Tyr Val Arg Ile Asn Asn Thr Ser |   | 1310 |
|   | 1315  | 1320 |
| Leu Leu Asp Ile Tyr Gln Glu Asp Ala Thr Phe Leu Glu Ser Phe Leu |   | 1325 |
|   | 1330  | 1335 |
| Asn Thr Ile Gly Thr Asp Asp Thr Arg Ser Ile Ile Gln Asp Leu Met |   | 1340 |
| 1345  | 1350  | 1355 |
| Asn Arg Leu Thr Phe Ile Ser Lys Val Gly Leu Ser Tyr Ile Thr Leu |   | 1360 |
|   | 1365  | 1370 |
| Gly Gln Arg Gln Asp Thr Leu Ser Asp Gly Glu Asn Tyr Arg Leu His |   | 1375 |
|   | 1380  | 1385 |
| Leu Ala Lys Lys Ile Ser Ile Asn Leu Thr Asn Ile Val Tyr Leu Phe |   | 1390 |
|   | 1395  | 1400 |
| Glu Glu Pro Leu Ser Gly Leu His Pro Gln Asp Leu Pro Thr Ile Val |   | 1405 |
|   | 1410  | 1415 |
| Gln Leu Leu Lys Glu Leu Val Ala Asn Asn Asn Thr Val Ile Ala Thr |   | 1420 |
| 1425  | 1430  | 1435 |
| Asp Arg Ser Cys Ser Leu Ile Pro His Ala Asp His Ala Ile Phe Leu |   | 1440 |
|   | 1445  | 1450 |
| Gly Pro Gly Ser Gly Pro Gln Gly Gly Phe Leu Met Asp Ser Asp Thr |   | 1455 |
|   | 1460  | 1465 |
| Glu Val Cys Pro Ser Val Asp Leu His Ala Asn Val Pro Gln Thr Glu |   | 1470 |
|   | 1475  | 1480 |
| Val Cys Pro Lys Ala Pro Leu Ser Ile Ser Lys Ala Asn His Thr Arg |   | 1485 |
|   | 1490  | 1495 |
| Gly Ser Asp Arg Thr Leu Lys Val Asn Leu Ser Ile His His Ile Gln |   | 1500 |
| 1505  | 1510  | 1515 |
| Asn Leu Lys Val Ser Ala Pro Leu His Ala Leu Val Ala Ile Gly Gly |   | 1520 |
|   | 1525  | 1530 |
| Val Ser Gly Ser Gly Lys Thr Ser Leu Leu Leu Glu Gly Phe Lys Lys |   | 1535 |
|   | 1540  | 1545 |
| Gln Ala Glu Leu Leu Ile Ala Lys Gly Thr Thr Thr Phe Ser Asp Leu |   | 1550 |
|   | 1555  | 1560 |
| Val Val Ile Asp Ser His Pro Ile Ala Ser Ser Gln Arg Ser Asp Ile |   | 1565 |
|   | 1570  | 1575 |
| Ser Thr Tyr Phe Asp Ile Ala Pro Ser Leu Arg Ala Phe Tyr Ala Ser |   | 1580 |
| 1585  | 1590  | 1595 |
| Leu Thr Gln Ala Lys Ala Leu Asn Ile Ser Ser Thr Met Phe Ser Thr |   | 1600 |

1605 1610 1615  
 Asn Thr Lys Gln Gly Gln Cys Ser Asp Cys Gln Gly Leu Gly Tyr Gln  
 1620 1625 1630  
 Trp Ile Asp Arg Ala Phe Tyr Ala Leu Glu Lys Arg Pro Cys Pro Thr  
 1635 1640 1645  
 Cys Ser Gly Phe Arg Ile Gln Pro Leu Ala Gln Glu Val Leu Tyr Glu  
 1650 1655 1660  
 Gly Lys His Phe Gly Glu Leu Leu His Thr Pro Ile Glu Thr Val Ala  
 1665 1670 1675 1680  
 Leu Arg Phe Pro Phe Ile Lys Lys Ile Gln Lys Pro Leu Lys Ala Leu  
 1685 1690 1695  
 Leu Asp Ile Gly Leu Gly Tyr Leu Pro Ile Gly Gln Lys Leu Ser Ser  
 1700 1705 1710  
 Leu Ser Val Ser Glu Lys Thr Ala Leu Lys Thr Ala Tyr Phe Leu Tyr  
 1715 1720 1725  
 Gln Thr Pro Glu Thr Pro Thr Leu Phe Leu Ile Asp Glu Leu Phe Ser  
 1730 1735 1740  
 Ser Leu Asp Pro Ile Lys Lys Gln His Leu Pro Glu Lys Leu Arg Ser  
 1745 1750 1755 1760  
 Leu Ile Asn Ser Gly His Ser Val Ile Tyr Ile Asp His Asp Val Lys  
 1765 1770 1775  
 Leu Leu Lys Ser Ala Asp Tyr Leu Ile Glu Ile Gly Pro Gly Ser Gly  
 1780 1785 1790  
 Lys Gln Gly Gly Lys Leu Leu Phe Ser Gly Ser Pro Lys Asp Ile Tyr  
 1795 1800 1805  
 Ala Ser Lys Asp Ser Leu Leu Lys Lys Tyr Ile Cys Asn Glu Glu Leu  
 1810 1815 1820  
 Asp Ser  
 1825  
 <210>114  
 <211>486  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>114  
 Asp Ser Met Ile Thr Arg Thr Lys Ile Ile Cys Thr Ile Gly Pro Ala  
 1 5 10 15  
 Thr Asn Ser Pro Glu Met Leu Ala Lys Leu Leu Asp Ala Gly Met Asn  
 20 25 30  
 Val Ala Arg Leu Asn Phe Ser His Gly Ser His Glu Thr His Gly Gln  
 35 40 45  
 Ala Ile Gly Phe Leu Lys Glu Leu Arg Glu Gln Lys Arg Val Pro Leu  
 50 55 60  
 Ala Ile Met Leu Asp Thr Lys Gly Pro Glu Ile Arg Leu Gly Asn Ile  
 65 70 75 80  
 Pro Gln Pro Ile Ser Val Ser Gln Gly Gln Lys Leu Arg Leu Val Ser  
 85 90 95  
 Ser Asp Ile Asp Gly Ser Ala Glu Gly Gly Val Ser Leu Tyr Pro Lys  
 100 105 110  
 Gly Ile Phe Pro Phe Val Pro Glu Gly Ala Asp Val Leu Ile Asp Asp  
 115 120 125  
 Gly Tyr Ile His Ala Val Val Ser Ser Glu Ala Asp Ser Leu Glu  
 130 135 140  
 Leu Glu Phe Met Asn Ser Gly Leu Leu Lys Ser His Lys Ser Leu Ser  
 145 150 155 160  
 Ile Arg Gly Val Asp Val Ala Leu Pro Phe Met Thr Glu Lys Asp Ile  
 165 170 175  
 Ala Asp Leu Lys Phe Gly Val Glu Gln Asn Met Asp Val Val Ala Ala  
 180 185 190  
 Ser Phe Val Arg Tyr Gly Glu Asp Ile Glu Thr Met Arg Lys Cys Leu  
 195 200 205  
 Ala Asp Leu Gly Asn Pro Lys Met Pro Ile Ile Ala Lys Ile Glu Asn  
 210 215 220  
 Arg Leu Gly Val Glu Asn Phe Ser Lys Ile Ala Lys Leu Ala Asp Gly  
 225 230 235 240

Ile Met Ile Ala Arg Gly Asp Leu Gly Ile Glu Leu Ser Val Val Glu  
 245 250 255  
 Val Pro Asn Leu Gln Lys Met Met Ala Lys Val Ser Arg Glu Thr Gly  
 260 265 270  
 His Phe Cys Val Thr Ala Thr Gln Met Leu Glu Ser Met Ile Arg Asn  
 275 280 285  
 Val Leu Pro Thr Arg Ala Glu Val Ser Asp Ile Ala Asn Ala Ile Tyr  
 290 295 300  
 Asp Gly Ser Ser Ala Val Met Leu Ser Gly Glu Thr Ala Ser Gly Ala  
 305 310 315 320  
 His Pro Val Ala Ala Val Lys Ile Met Arg Ser Val Ile Leu Glu Thr  
 325 330 335  
 Glu Lys Asn Leu Ser His Asp Ser Phe Leu Lys Leu Asp Glu Ser Asn  
 340 345 350  
 Ser Ala Leu Gln Val Ser Pro Tyr Leu Ser Ala Ile Gly Leu Ala Gly  
 355 360 365  
 Ile Gln Ile Ala Glu Arg Ala Asp Ala Lys Ala Leu Ile Val Tyr Thr  
 370 375 380  
 Glu Ser Gly Ser Ser Pro Met Phe Leu Ser Lys Tyr Arg Pro Lys Phe  
 385 390 395 400  
 Pro Ile Ile Ala Val Thr Pro Ser Thr Ser Val Tyr Tyr Arg Leu Ala  
 405 410 415  
 Leu Glu Trp Gly Val Tyr Pro Met Leu Thr Gln Glu Ser Asp Arg Ala  
 420 425 430  
 Val Trp Arg His Gln Ala Cys Ile Tyr Gly Ile Glu Gln Gly Ile Leu  
 435 440 445  
 Ser Asn Tyr Asp Arg Ile Leu Val Leu Ser Arg Gly Ala Cys Met Glu  
 450 455 460  
 Glu Thr Asn Asn Leu Thr Leu Thr Ile Val Asn Asp Ile Leu Thr Gly  
 465 470 475 480  
 Ser Glu Phe Pro Glu Thr  
 485

&lt;210&gt;115

&lt;211&gt;463

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;115

Leu Val Gly Lys Lys Phe His Gln Ile Lys Arg Thr Ile Leu Glu Ala  
 1 5 10 15  
 Pro Leu Tyr Tyr Leu Val Ser Gly Ile Ile Ala Leu Cys Arg His Thr  
 20 25 30  
 Pro Arg Ser Phe Leu Thr Gly Leu Gly Lys Gly Phe Gly Phe Leu Ala  
 35 40 45  
 Phe Tyr Ile Ile Ser Asp Tyr Arg Lys Thr Ala Leu Thr Asn Leu Ala  
 50 55 60  
 Leu Ala Phe Pro Glu Lys Thr Phe Asp Glu Arg Tyr Lys Ile Ala Arg  
 65 70 75 80  
 Gln Ser Leu Gln His Leu Ile Ile Thr Leu Leu Glu Leu Leu Ala Ile  
 85 90 95  
 Glu Gln Leu Val Gly Asn Ile Asp Lys Leu Ile Thr Ile Val Thr Ser  
 100 105 110  
 Ser Arg Asn Pro Lys Gly Phe Ser Ser Glu Glu Val Ile Ser Asn Glu  
 115 120 125  
 Asp Leu Glu Glu Thr Phe Lys Asn Leu Gln Glu Lys Gln Gly Leu Ile  
 130 135 140  
 Leu Phe Cys Gly His Gln Ala Asn Trp Glu Leu Pro Phe Leu Tyr Ile  
 145 150 155 160  
 Thr Lys Asn Tyr Pro Gly Ile Ala Phe Ala Lys Ala Ile Lys Asn Gln  
 165 170 175  
 Arg Leu Ser Lys Lys Ile Phe Ala Leu Arg Glu Val Phe Lys Gly Lys  
 180 185 190  
 Ile Val Pro Pro Lys Asn Gly Ile Gln Gln Gly Ile Glu Ala Leu Asn  
 195 200 205  
 Gln Gly Lys Leu Val Gly Ile Val Gly Asp Gln Ala Leu Leu Met Ser

210 215 220  
 Ser Tyr Thr Tyr Pro Leu Phe Gly Ser Pro Ala Phe Thr Thr Thr Ser  
 225 230 235 240  
 Pro Ala Leu Leu Ala Tyr Lys Thr Gly Phe Pro Val Ile Ala Val Asn  
 245 250 255  
 Val Ser Arg Gln Ala Lys Gly Phe Glu Val Ile Pro Ser Ala Lys Leu  
 260 265 270  
 Tyr Ala Asn Lys Ser Leu Pro Met Lys Glu Ser Val Ala Ile Leu Met  
 275 280 285  
 Asp Gln Met Met Gly Phe Leu Glu Lys Gly Ile Ala Ser Gln Pro Glu  
 290 295 300  
 Gln Trp Met Trp Ile His Lys Arg Trp Lys Arg Lys Ile Ser Asn Val  
 305 310 315 320  
 Ile Lys Lys Lys Tyr Arg Tyr Ser His Ile Leu Val Phe Val Asp Gln  
 325 330 335  
 Val Ser Ser His Phe Ser Phe Leu Lys Ala Leu Ala Glu Cys Phe Ser  
 340 345 350  
 Gly Thr Thr Leu His Leu Thr Leu Gly Asn Ala Asp His Leu Glu Glu  
 355 360 365  
 Leu Gln Glu Gln Phe Pro Glu Tyr Ser Leu Ile Gln Leu Arg Asn Asp  
 370 375 380  
 Gln Asp Ile Leu Ala Leu Pro Asn Cys Tyr Pro Ala Ile Phe Asp Leu  
 385 390 395 400  
 Thr Asn Asn Leu Gln His Leu Tyr Lys His Phe Arg Lys Thr Gly Ser  
 405 410 415  
 Cys Ala Val Tyr Ser Lys Arg Phe Leu Glu Lys Ser Leu Asp His Pro  
 420 425 430  
 Gln Ala Pro Leu Lys Asn Ser Leu Arg Ile Phe Tyr Ser Lys Asn Leu  
 435 440 445  
 Lys Asp Lys Glu Arg Lys Asn Phe Lys Val Lys Ser Lys Gly Pro  
 450 455 460

&lt;210&gt;116

&lt;211&gt;114

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;116

Ile Ile Leu Leu Cys Phe Leu Leu Ser Gln Asp Phe Ser Phe Cys Ser  
 1 5 10 15  
 Glu Asp Ala Pro Glu Arg Asn Met Leu Asn Ser Ile Val Thr Lys Arg  
 20 25 30  
 Thr Arg Thr Ala Ala Thr Leu Leu Ile Pro Lys Val Ile Pro Glu Ala  
 35 40 45  
 Pro Ser Thr Pro Val Gln Ile Lys Met Ile Ser Ile Lys Glu Thr Ile  
 50 55 60  
 Ala Val Arg Ala Lys Ser Pro Ala Asp Thr Val Ala Thr Phe Ala Leu  
 65 70 75 80  
 Asp Ser Glu Leu Ser Glu Gln Gln Gln Thr Val Leu Ile Ala Ala Ser  
 85 90 95  
 Lys Pro Trp Pro Lys Gln Ser Ile Lys His Ile Lys Phe Pro Leu Thr  
 100 105 110  
 Lys Phe

&lt;210&gt;117

&lt;211&gt;104

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;117

Asn Leu Val Arg Gly Asn Phe Met Cys Leu Ile Asp Cys Leu Gly Gln  
 1 5 10 15  
 Gly Phe Glu Ala Ala Ile Asn Thr Val Cys Cys Cys Ser Asp Ser Ser  
 20 25 30  
 Glu Ser Lys Ala Asn Val Ala Thr Val Ser Ala Gly Leu Leu Ala Leu  
 35 40 45  
 Thr Ala Ile Val Ser Phe Ile Leu Ile Ile Leu Ile Cys Thr Gly Val

50 55 60  
 Leu Gly Ala Ser Gly Met Thr Phe Gly Met Ser Asn Val Ala Ala Val  
 65 70 75 80  
 Leu Val Leu Leu Val Thr Ile Leu Leu Ser Met Phe Leu Ser Gly Ala  
 85 90 95  
 Ser Ser Leu Gln Asn Glu Lys Ser  
 100  
 <210>118  
 <211>434  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>118  
 Arg Thr Gln Lys Lys Thr Phe Ile Leu Leu Asp Leu Glu Thr Met Ile  
 1 5 10 15  
 Lys Phe Leu Ser Gln Leu Phe Ile Arg His Trp Pro Arg Lys Val Val  
 20 25 30  
 Ser Leu Gly Phe Ala Ile Ile Ile Trp Ile Leu Val Gly Gln Ser Val  
 35 40 45  
 Thr Ile Thr Arg Thr Leu Thr Asn Val Pro Val Arg Ile Val Asp Leu  
 50 55 60  
 His Pro Asp Gln Thr Val Leu Gly Leu Gln Lys Ser Gly Phe Leu Asn  
 65 70 75 80  
 Lys Lys Val Ser Leu Thr Ile Thr Gly Asn Lys Asn Thr Val Gln Asp  
 85 90 95  
 Leu Arg Pro Ser Asn Leu Glu Val Val Ile Ser Ala Ala Asn His Thr  
 100 105 110  
 Glu Ser Trp Ile Ala Thr Ile Asp Lys His Asn Leu Val Ser Val Asp  
 115 120 125  
 His Glu Ile Asn Ile Arg Lys Asp Ile His Ser Val Asp Ala Asn Asp  
 130 135 140  
 Ile Phe Val Arg Leu Thr Gln Tyr Val Thr Glu Asp Ile Leu Leu Thr  
 145 150 155 160  
 Ile Thr Lys Pro Ile Gly Ser Pro Pro Lys Gly Tyr Glu Tyr Leu Asp  
 165 170 175  
 Val Trp Pro Lys Tyr Leu Asn Gln Lys Val Ser Gly Pro Lys Glu Tyr  
 180 185 190  
 Ile Asn Ala Leu Lys Glu Gln Gly Leu Glu Leu Thr Phe Asn Leu Asn  
 195 200 205  
 Lys Ile Ser Phe Glu Glu Leu Glu Arg Asn Arg Ile Ala Gln Gly Ser  
 210 215 220  
 His Asp Glu Ile Ile Phe Pro Ile Pro Lys Glu Trp Lys Lys Ile Leu  
 225 230 235 240  
 Ile Pro Phe Glu Asn Thr Phe Met Asp Leu Asn Asp Pro Gln Ala Asp  
 245 250 255  
 Phe Leu Arg Leu Leu Phe Leu Lys Arg Glu Cys Ile Pro Leu Asn Leu  
 260 265 270  
 Asn Leu Pro Val Phe Leu Phe Phe Pro Val Thr Phe Ile Gln Thr Met  
 275 280 285  
 Asn Pro Leu Glu Tyr Ser Leu Asp Pro Val Pro Pro Ile Ile Leu Asn  
 290 295 300  
 His Gly Ile His Gln Ile Asn Ile Pro Leu Tyr Val Lys Asp Val Ser  
 305 310 315 320  
 Arg Gln Phe Leu Asp Val Val Lys Asn Asn Met Val Leu Thr Ile Val  
 325 330 335  
 Met Pro Ser Pro Gln Asp Pro Ser Ser Ile Asn Trp Ala Ile Glu Phe  
 340 345 350  
 Leu Asp Glu Lys Thr Leu Glu Asn Thr Phe Leu Gln Thr Ile Ile Ala  
 355 360 365  
 Gln Glu His Gly Ile Leu His Asp Ile Ala Leu Ile Asp Glu Ala Gly  
 370 375 380  
 Ile Arg His Arg Phe Arg Glu Tyr Leu Arg Lys Leu Ala Leu Phe Thr  
 385 390 395 400  
 Ala Asp Gly Glu Pro Leu Asn Leu Ile Ala Glu Ile Lys Asn Asn Lys  
 405 410 415

Val Val Ile Gln Thr Lys Thr Lys Glu Thr Thr Lys Leu Tyr Lys Lys  
 420 425 430  
 Glu Trp

&lt;210&gt;119

&lt;211&gt;279

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;119

Leu Cys Asn Phe Ser Gln Tyr Thr Thr Gln Gly Pro Ser Lys Thr Met  
 1 5 10 15  
 Pro Phe Asp Ile Thr Tyr Tyr Thr Thr Pro Leu Leu Glu Ile Ile Leu  
 20 25 30  
 Ile Trp Val Met Leu Asn Tyr Leu Leu Lys Phe Phe Trp Gly Thr Arg  
 35 40 45  
 Ala Met Asp Val Val Phe Gly Leu Leu Ala Phe Leu Phe Leu Phe Val  
 50 55 60  
 Leu Ala Asp Lys Leu His Leu Pro Ile Ile Arg Arg Leu Met Leu His  
 65 70 75 80  
 Val Val Asn Ile Ala Ala Ile Val Val Phe Ile Ile Phe Gln Pro Glu  
 85 90 95  
 Ile Arg Leu Ala Leu Ser Arg Ile Arg Phe His Gly Lys Lys Phe Phe  
 100 105 110  
 Ile Asp Thr Gln Glu Gln Phe Val Glu Gln Leu Ala Ala Ser Ile Tyr  
 115 120 125  
 Gln Leu Ser Glu Arg Gln Ile Gly Ala Leu Val Val Leu Glu Asn Lys  
 130 135 140  
 Asp Ser Phe Asp Glu Tyr Leu Ser Phe Ser Ser Val Lys Ile Asn Ala  
 145 150 155 160  
 Thr Phe Ser Glu Glu Leu Leu Glu Thr Ile Phe Glu Pro Ser Ser Pro  
 165 170 175  
 Leu His Asp Gly Ala Val Ile Leu Arg Gly Asp Ile Leu Ala Tyr Ala  
 180 185 190  
 Arg Val Val Leu Pro Leu Ala His Asp Thr Thr Gln Leu Ser Arg Ser  
 195 200 205  
 Met Gly Thr Arg His Arg Ala Ala Leu Gly Ala Ser Gln Arg Ser Asp  
 210 215 220  
 Ala Leu Ile Ile Thr Val Ser Glu Glu Asn Gly Ser Val Ser Leu Ser  
 225 230 235 240  
 Arg Asp Gly Leu Leu Thr Arg Gly Val Lys Ile Asp Arg Phe Lys Ala  
 245 250 255  
 Val Leu Arg Ser Ile Leu Ser Pro Lys Glu His Lys Arg Lys Pro Leu  
 260 265 270  
 Phe Ser Trp Ile Trp Lys Arg  
 275

&lt;210&gt;120

&lt;211&gt;448

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;120

Met Asp Ala Leu Ile Leu Ser Arg Ile Gln Phe Gly Leu Phe Ile Thr  
 1 5 10 15  
 Phe His Tyr Leu Phe Val Pro Leu Ser Met Gly Leu Ser Met Met Leu  
 20 25 30  
 Val Ile Met Glu Gly Leu Tyr Leu Val Thr Lys Lys Gln Ile Tyr Lys  
 35 40 45  
 Gln Met Thr Trp Phe Trp Val Gly Ile Phe Ala Leu Thr Phe Val Leu  
 50 55 60  
 Gly Val Val Thr Gly Ile Met Gln Ile Phe Ser Phe Gly Ser Asn Trp  
 65 70 75 80  
 Ala Asn Phe Ser Glu Tyr Thr Gly Asn Ile Phe Gly Thr Leu Leu Gly  
 85 90 95  
 Ser Glu Gly Val Phe Ala Phe Phe Leu Glu Ser Gly Phe Leu Gly Ile  
 100 105 110

Leu Leu Phe Gly Arg His Lys Val Ser Lys Lys Met His Phe Phe Ser  
 115 120 125  
 Thr Cys Met Val Ala Leu Gly Ala His Met Ser Ala Phe Trp Ile Ile  
 130 135 140  
 Cys Ala Asn Ser Trp Met Gln Thr Pro Ser Gly Tyr Glu Met Val Met  
 145 150 155 160  
 His Lys Gly Lys Leu Ile Pro Ala Leu Thr Ser Phe Trp Gly Val Val  
 165 170 175  
 Phe Ser Pro Thr Thr Ile Asp Arg Phe Ile His Ala Val Leu Gly Thr  
 180 185 190  
 Trp Leu Ser Gly Val Phe Leu Val Ile Ser Val Ser Ala Tyr Tyr Leu  
 195 200 205  
 Trp Lys Lys Arg His His Glu Phe Ala Lys Gln Gly Met Lys Ile Gly  
 210 215 220  
 Thr Ile Cys Ala Val Ile Val Leu Val Leu Gln Leu Trp Ser Ala Asp  
 225 230 235 240  
 Val Thr Ala Arg Gly Val Ala Lys Asn Gln Pro Ala Lys Leu Ala Ala  
 245 250 255  
 Phe Glu Gly Ile Phe Lys Thr Glu Glu Tyr Thr Pro Ile Trp Ala Phe  
 260 265 270  
 Gly Tyr Val Asp Met Glu Lys Glu Arg Val Ile Gly Leu Pro Ile Pro  
 275 280 285  
 Gly Ala Leu Ser Phe Leu Val His Arg Asn Ile Lys Thr Pro Val Thr  
 290 295 300  
 Gly Leu Asp Gln Ile Pro Arg Asp Glu Trp Pro Asn Val Gln Ala Val  
 305 310 315 320  
 Phe Gln Leu Tyr His Leu Met Ile Met Leu Trp Gly Val Met Val Ala  
 325 330 335  
 Leu Thr Leu Ile Ser Trp Ser Ala Tyr Lys Gly Trp Arg Trp Ala Leu  
 340 345 350  
 Lys Pro Phe Phe Leu Val Ile Leu Thr Phe Ser Val Leu Leu Pro Glu  
 355 360 365  
 Ile Cys Asn Glu Cys Gly Trp Cys Ala Ala Glu Met Gly Arg Gln Pro  
 370 375 380  
 Trp Val Val Gln Gly Leu Leu Lys Thr Lys Asp Ala Val Ser Pro Ile  
 385 390 395 400  
 Val Gln Ala Asn Lys Ile Val Gln Ser Leu Val Ile Phe Ser Leu Val  
 405 410 415  
 Phe Ile Ala Leu Leu Thr Leu Phe Ile Thr Val Leu Cys Lys Lys Ile  
 420 425 430  
 Lys His Gly Pro Glu Glu Glu Asn Asp Leu Thr Glu Phe Glu Val Lys  
 435 440 445

&lt;210&gt;121

&lt;211&gt;268

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;121

Met Glu Leu Ser Leu Thr Ser Leu Leu Pro Leu Ala Trp Tyr Val Ile  
 1 5 10 15  
 Leu Gly Val Ala Val Phe Ala Tyr Ser Phe Gly Asp Gly Phe Asp Leu  
 20 25 30  
 Gly Leu Gly Ala Val Tyr Leu Lys Ala Lys Glu Asp Lys Glu Arg Arg  
 35 40 45  
 Ile Leu Leu Asn Ser Ile Gly Pro Val Trp Asp Gly Asn Glu Val Trp  
 50 55 60  
 Leu Val Ile Ile Val Gly Gly Leu Phe Ala Gly Phe Pro Ala Cys Tyr  
 65 70 75 80  
 Ala Thr Leu Leu Ser Ile Phe Tyr Met Pro Ile Trp Thr Leu Val Leu  
 85 90 95  
 Leu Tyr Ile Phe Arg Gly Cys Ser Leu Glu Phe Arg Ser Lys Ser Glu  
 100 105 110  
 Ser Val Ser Trp Lys Ile Phe Trp Asp Ile Ile Phe Ile Cys Ser Gly  
 115 120 125  
 Thr Ala Ile Ser Phe Phe Leu Gly Thr Ile Val Gly Asn Leu Ile Leu

130 135 140  
 Gly Leu Pro Leu Ser Pro Asp Thr Ser Tyr Ala Ser Leu Ser Trp Ile  
 145 150 155 160  
 Leu Phe Phe Arg Pro Tyr Ala Ala Leu Cys Gly Ala Val Val Ala Ser  
 165 170 175  
 Ala Phe Ala Thr His Gly Ser Phe Phe Ala Leu Met Lys Thr Ser Asp  
 180 185 190  
 Ser Leu Asn Ala Arg Ile Ala Gln Gln Phe Pro Tyr Ile Leu Ser Ser  
 195 200 205  
 Phe Leu Val Phe Tyr Val Leu Phe Leu Gly Ala Ser Leu Ile Ser Ile  
 210 215 220  
 Pro Lys Arg Phe Asp Ala Phe Pro Thr Tyr Pro Leu Leu Ile Leu Leu  
 225 230 235 240  
 Ile Ala Leu Thr Ser Cys Cys Cys Val Ala Ala Lys Thr Ser Val Ser  
 245 250 255  
 Lys Lys His Tyr Gly Thr His Leu Phe Ile Leu His  
 260 265  
 <210>122  
 <211>403  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>122  
 Glu Lys Ser Met Arg Met Leu Gln Ile Ser Met Leu Leu Leu Ala Leu  
 1 5 10 15  
 Gly Thr Ala Ile Asn Ser Pro Ala Ile Tyr Ala Ala Asp Ser Gln Ser  
 20 25 30  
 Val Ser Phe Pro Glu Gln Leu Pro Ser Ser Phe Thr Gly Glu Ile Lys  
 35 40 45  
 Gly Asn His Val Arg Met Arg Leu Ala Pro His Thr Asp Gly Thr Ile  
 50 55 60  
 Ile Arg Glu Phe Ser Lys Gly Asp Leu Val Ala Val Ile Gly Glu Ser  
 65 70 75 80  
 Lys Asp Tyr Tyr Val Ile Ser Ala Pro Pro Gly Ile Thr Gly Tyr Val  
 85 90 95  
 Phe Arg Ser Phe Val Leu Asp Asn Val Val Glu Gly Glu Gln Val Asn  
 100 105 110  
 Val Arg Leu Glu Pro Ser Thr Ser Ala Pro Val Leu Val Arg Leu Ser  
 115 120 125  
 Arg Gly Thr Gln Ile Gln Pro Ala Ser Gln Glu Pro His Gly Lys Trp  
 130 135 140  
 Leu Glu Val Val Leu Pro Ser Gln Cys Val Phe Tyr Val Ala Lys Asn  
 145 150 155 160  
 Phe Val Ala Asn Lys Gly Pro Ile Glu Leu Tyr Thr Gln Arg Glu Gly  
 165 170 175  
 Gln Lys Lys Ile Ala Met Asp Leu Ile Asn Ser Ala Leu Asn Phe Ala  
 180 185 190  
 His Ile Glu Leu Glu Lys Ser Leu Asn Glu Ile Asp Leu Glu Ala Ile  
 195 200 205  
 Tyr Lys Lys Ile Asn Leu Val Gln Ser Glu Glu Phe Lys Asp Val Pro  
 210 215 220  
 Gly Ile Gln Gly Leu Ile Gln Lys Ala Leu Glu Glu Ile Gln Asp Ala  
 225 230 235 240  
 Tyr Leu Ser Lys Ser Leu Glu Ser Gln Asn Thr Ser Ile Ala Ser Ser  
 245 250 255  
 Gln Cys Ser Thr Pro Lys Val Ser Ser Ser Glu Val Thr Thr Ser Leu  
 260 265 270  
 Leu Ser Arg His Ile Arg Lys Gln Thr Ala Leu Lys Thr Ala Pro Leu  
 275 280 285  
 Thr Gln Gly Arg Glu Asn Leu Glu Tyr Ser Leu Phe Arg Ile Trp Ala  
 290 295 300  
 Ser Met Gln Gln Gly Asn Asp His Ser Glu Ala Leu Thr Gln Glu Ala  
 305 310 315 320  
 Phe Tyr Arg Ala Glu Gln Lys Lys Lys Gln Val Leu Ala Gly Val Leu  
 325 330 335





Arg Arg Gly Lys Leu Leu Thr Leu Glu Leu Leu Lys Ile Ile Ala Lys  
 100 105 110  
 Arg Glu Pro Met Val Phe Val Thr Lys Ser Leu Gly Arg Arg Val Arg  
 115 120 125  
 Ala Glu Ala Leu Gln Ile Glu Ser Arg Asp Tyr Glu Ser Lys Arg Phe  
 130 135 140  
 Ser Phe Arg Ser Leu Tyr Arg Gly Phe Arg Glu Leu Gln Val Ser Gln  
 145 150 155 160  
 Glu Asp Ile Glu Asn Phe Tyr Lys Asn Gly Tyr Leu Asp Leu Pro Leu  
 165 170 175  
 Asp Val Val Ser Ser Pro Asn Glu Tyr Phe Phe Met Ser Ala Gly Glu  
 180 185 190  
 Asn His Phe Ala Leu Gly Arg Tyr Tyr Val Ser Glu Gly Lys Ile Ile  
 195 200 205  
 Ala Leu Lys Ala Met Asp Lys Ser Val Trp Gly Ile Lys Pro Leu Asn  
 210 215 220  
 Thr Glu Gln Arg Cys Ala Leu Asp Leu Leu Leu Arg Asp Asp Val Lys  
 225 230 235 240  
 Leu Val Thr Leu Ile Gly Gln Ala Gly Ser Gly Lys Thr Ile Leu Ala  
 245 250 255  
 Leu Ala Ala Ala Met His Lys Val Phe Asp Lys Glu Thr Tyr Asn Lys  
 260 265 270  
 Val Leu Val Ser Arg Pro Ile Val Pro Met Gly Arg Asp Ile Gly Phe  
 275 280 285  
 Leu Pro Gly Leu Lys Glu Asp Lys Leu Met His Trp Met Gln Pro Ile  
 290 295 300  
 Tyr Asp Asn Met Glu Val Leu Phe Ser Ile Asn Gln Met Gly Asn Ser  
 305 310 315 320  
 Ser Glu Ala Leu Gln Ala Leu Met Asp Ala Lys Lys Leu Glu Met Glu  
 325 330 335  
 Ala Leu Thr Tyr Ile Arg Gly Arg Ser Leu Pro Lys Ala Phe Ile Ile  
 340 345 350  
 Ile Asp Glu Ala Gln Asn Leu Thr Pro His Glu Ile Lys Thr Ile Ile  
 355 360 365  
 Ser Arg Ala Gly Lys Gly Thr Lys Ile Val Leu Thr Gly Asp Pro Thr  
 370 375 380  
 Gln Ile Asp Ser Leu Tyr Phe Asp Glu Asn Ser Asn Gly Leu Thr Tyr  
 385 390 395 400  
 Leu Val Gly Lys Phe His His Leu Ala Leu Tyr Gly His Met Phe Met  
 405 410 415  
 Thr Arg Thr Glu Arg Ser Glu Leu Ala Ala Ala Ala Thr Ile Leu  
 420 425 430

&lt;210&gt;125

&lt;211&gt;184

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;125

Asn Asn Glu Ser Arg Trp Gly Gly Tyr Lys Ser Ser Ser Ile Gly Ser  
 1 5 10 15  
 Ser Gln Cys Arg Phe Leu Gly Leu Ser Gln Arg Pro Leu Asn Pro Glu  
 20 25 30  
 Arg Gln Gly Thr Pro Leu Asn Glu Gly Glu Cys Arg Ala Gly Met Trp  
 35 40 45  
 Arg Asn Ala Asp Gly Ser Asn His Thr Gly Lys Gln Gly Lys Pro His  
 50 55 60  
 Tyr Leu Ala Gln Leu Leu Gly Pro Lys Ala Val Asp His His Asn Lys  
 65 70 75 80  
 Ser Gln Ala Ala Phe Asp Arg Cys Lys Asn Ala Tyr Leu Asn Cys Phe  
 85 90 95  
 Ser Leu Ala Gln Thr Leu Gly Val Thr Phe Leu Gln Ile Pro Leu Ile  
 100 105 110  
 Ser Ser Gly Ile Tyr Ala Pro Pro Glu Asn Arg Lys Lys Pro Asn Ser  
 115 120 125  
 Glu Glu Asn Lys Val Arg Met Arg Trp Ile His Ala Val Lys Cys Ala

130 135 140  
 Leu Val Ala Ala Met Gln Glu Phe Gly Asn Glu Pro Gly Asn Thr Asp  
 145 155 160  
 Arg Arg Met Leu Ile Val Leu Thr Asp Leu Lys Thr Pro Ala Ile Thr  
 165 170 175  
 Asp Pro Lys Lys Lys Ser His Leu  
 180

&lt;210&gt;126

&lt;211&gt;195

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;126

Lys Asn Leu Phe His Tyr Lys Ala Ile Leu Met Ser Ile Phe Asn Glu  
 1 5 10 15  
 Glu Val Phe Ile Ile Ser His Arg His Thr Pro Leu Gly Gln Thr Ser  
 20 25 30  
 Thr Ala Leu Arg Asn Thr Pro Leu Val Asn Pro Leu His Arg Thr Asn  
 35 40 45  
 Leu Gln Arg Ile Ala Ser Tyr Ile Pro Ile Phe Ser Thr Phe Ile Gly  
 50 55 60  
 Ile Lys Thr Leu Lys Gly Ile Ser Ser Leu Gln Tyr Ser Met Val Leu  
 65 70 75 80  
 Met Thr Gly Asn Phe Ser Ser Val Cys Lys Thr Leu Pro Cys Pro Glu  
 85 90 95  
 Ile Tyr Glu Glu Leu Pro Lys Val Arg Lys Glu Ala Trp Leu Glu Ile  
 100 105 110  
 Phe Gly Ile Lys Ala Leu Tyr Tyr Leu Val Leu Gly Val Ile Lys Ile  
 115 120 125  
 Ile Lys Leu Ile Val Arg Tyr Leu Cys Pro Cys Cys Arg Pro Pro Glu  
 130 135 140  
 Pro Arg Glu Pro Gln Asn Pro Leu Thr Pro Thr Pro Leu Asp Met Gly  
 145 150 155 160  
 Gln Gln Ile Asp Ala Ile Phe Ser Thr Pro Thr Ser Pro Thr Gly Phe  
 165 170 175  
 Lys Asp Pro Phe Leu Asp Asp Leu Leu Gln Glu Asp Lys Lys Lys Ala  
 180 185 190  
 Pro His Leu  
 195

&lt;210&gt;127

&lt;211&gt;1043

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;127

Met Thr Ala Asp Glu Val Gly Lys Asn Ser Phe Ala Lys Lys Glu Glu  
 1 5 10 15  
 Gln Val Leu Lys Phe Trp Lys Asp Asn Gln Ile Phe Glu Lys Ser Leu  
 20 25 30  
 Gln Asn Arg Gln Gly Lys Thr Leu Tyr Ser Phe Tyr Asp Gly Pro Pro  
 35 40 45  
 Phe Ala Thr Gly Leu Pro His Tyr Gly His Leu Leu Ala Ser Thr Ile  
 50 55 60  
 Lys Asp Val Val Gly Arg Tyr Ala Thr Met Asp Gly Tyr Tyr Val Pro  
 65 70 75 80  
 Arg Arg Phe Gly Trp Asp Cys His Gly Val Pro Val Glu Tyr Glu Val  
 85 90 95  
 Glu Lys Ser Leu Ser Leu Thr Ala Pro Gly Pro Ile Glu Asp Phe Gly  
 100 105 110  
 Ile Ala Ser Phe Asn Glu Glu Cys Arg Lys Ile Val Phe Arg Tyr Val  
 115 120 125  
 His Glu Trp Glu Tyr Tyr Ile Asn Arg Ile Gly Arg Trp Val Asp Phe  
 130 135 140  
 Ser Ser Thr Trp Lys Thr Met Asp Ala Ser Phe Met Glu Ser Val Trp  
 145 150 155 160  
 Trp Val Phe Gln Ser Leu Tyr Asn Gln Gly Leu Val Tyr Glu Gly Thr

418

675 680 685  
 Val Gly Lys Val Arg Glu Ser Met Ser Gln Tyr His Leu Asn Phe Ala  
 690 695 700  
 Val Glu Pro Phe Val Thr Phe Ile Asp Asp Leu Thr Asn Trp Tyr Ile  
 705 710 715 720  
 Arg Arg Cys Arg Arg Arg Phe Trp Glu Ala Glu Asp Thr Pro Asp Arg  
 725 730 735  
 Arg Ala Ala Phe Ser Thr Leu Tyr Glu Val Leu Thr Val Phe Cys Lys  
 740 745 750  
 Val Ile Ala Pro Phe Val Pro Phe Leu Ala Glu Asp Ile Tyr Gln Lys  
 755 760 765  
 Leu Lys Leu Glu Lys Glu Pro Glu Ser Val His Leu Cys Asp Phe Pro  
 770 775 780  
 Gln Val Glu Met Asp Lys Ile Leu Pro Asp Leu Glu Lys Arg Met His  
 785 790 795 800  
 Asp Ile Arg Glu Ile Val Gly Leu Gly His Ser Leu Arg Lys Glu His  
 805 810 815  
 Lys Leu Lys Val Arg Gln Pro Leu Ala Asn Phe Tyr Val Val Gly Ser  
 820 825 830  
 Lys Asp Arg Leu Ser Leu Leu Lys Thr Phe Glu Gly Leu Ile Ala Glu  
 835 840 845  
 Glu Leu Asn Val Lys Asn Val Ile Phe Tyr Glu Glu Ala Pro Ser Phe  
 850 855 860  
 Ile Tyr Thr Thr Val Lys Pro Asn Phe Arg Met Leu Gly Lys Lys Val  
 865 870 875 880  
 Gly Ser Lys Met Lys Glu Val Gln Lys Ala Leu Ser Glu Leu Pro Asn  
 885 890 895  
 Asn Ala Ile Asp Lys Leu Ile Gln Glu Thr Trp Val Leu Thr Ile  
 900 905 910  
 Asp Asp Arg Glu Ile Ala Leu Asp Gly Asp Asp Val Val Ile Cys Arg  
 915 920 925  
 His Thr Asp Pro Gly Tyr Ile Ala Arg Ser Ser Ala Leu Phe Ser Val  
 930 935 940  
 Ile Leu Asp Cys Gln Leu Arg Glu Pro Leu Ile Val Glu Gly Ile Ala  
 945 950 955 960  
 Arg Glu Leu Val Asn Lys Ile Asn Thr Met Arg Arg Asn Gln Gln Leu  
 965 970 975  
 His Val Ser Asp Arg Ile Ala Leu Arg Ile Lys Thr Thr Glu Ala Val  
 980 985 990  
 His Arg Ala Phe Leu Asp Tyr Glu Asn Tyr Ile Cys Glu Glu Thr Leu  
 995 1000 1005  
 Ile Ile Ala Tyr Asp Phe Thr Gln Asp Ser Asp Phe Gln Gly Glu Asn  
 1010 1015 1020  
 Trp Asp Ile Asn Gly His Ala Thr Gln Ile Glu Ile Thr Val Ser Ser  
 1025 1030 1035 1040  
 Ile Asp Ser

&lt;210&gt;128

&lt;211&gt;636

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;128

Met Lys Gln His Tyr Ser Leu Asn Lys Ser Arg His Ile Leu Arg Ser  
 1 5 10 15  
 Thr Tyr Lys Leu Leu Lys Ser Lys Lys Leu Ala His Ser Pro Ala Asp  
 20 25 30  
 Lys Lys Gln Leu Gln Glu Leu Leu Glu Gln Leu Glu Ala Ile Phe  
 35 40 45  
 Glu His Asp Gln Glu Thr Ala Ser Asp Leu Ala Gln Gln Ala Leu Ala  
 50 55 60  
 Phe Ser Asn Arg Tyr Pro Asn Ser Phe Gly Arg Lys Thr Tyr Glu Leu  
 65 70 75 80  
 Ile Lys Ala Leu Leu Phe Ala Gly Val Val Ala Phe Leu Val Arg Gln  
 85 90 95

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Trp | Phe | Glu | Leu | Tyr | Glu | Val | Pro | Thr | Gly | Ser | Met | Arg | Pro | Thr |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ile | Leu | Glu | Gln | Asp | Arg | Ile | Leu | Val | Ser | Lys | Thr | Thr | Phe | Gly | Leu |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| His | Cys | Pro | Phe | Ala | Lys | Lys | Pro | Leu | Ala | Phe | Asn | Pro | Glu | Ser | Val |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Thr | Arg | Gly | Gly | Leu | Val | Val | Phe | Thr | Val | Gly | Asp | Leu | Pro | Ile | Pro |
| 145 |     |     |     | 150 |     |     |     |     |     | 155 |     |     |     | 160 |     |
| Asp | Ala | Asp | Thr | Lys | Tyr | Phe | Gly | Leu | Ile | Pro | Gly | Lys | Lys | Arg | Tyr |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Ile | Lys | Arg | Cys | Met | Gly | Arg | Pro | Gly | Asp | Phe | Leu | Tyr | Phe | Tyr | Gly |
|     |     |     | 180 |     |     |     | 185 |     |     |     |     |     | 190 |     |     |
| Gly | Lys | Ile | Tyr | Gly | Leu | Asp | Asp | Ala | Gly | Lys | Arg | Ile | Glu | Phe | Pro |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Ser | Val | His | Gly | Leu | Glu | Asn | Leu | Tyr | His | Val | Pro | Tyr | Ile | Ser | Phe |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Asp | Gly | Thr | Thr | Ser | Ser | His | Thr | Glu | Gly | Gln | Lys | Thr | Ile | Ile | Asp |
| 225 |     |     |     | 230 |     |     |     |     |     | 235 |     |     |     | 240 |     |
| Phe | Lys | Gln | Phe | Asn | Gln | Ser | Tyr | Gly | Arg | Leu | Ile | Phe | Pro | Gln | Thr |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Ser | Met | Tyr | Gly | Gln | Phe | Phe | Asp | His | Lys | Glu | Trp | His | Gln | Asp | Glu |
|     |     |     | 260 |     |     |     | 265 |     |     |     |     |     | 270 |     |     |
| Pro | Asn | Lys | Leu | Lys | Asp | Pro | His | Leu | Ser | Pro | Val | Ser | Tyr | Ala | Asp |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Leu | Phe | Gly | Met | Gly | Asn | Tyr | Ala | Met | Val | Arg | Ile | Leu | Thr | Glu | His |
|     | 290 |     |     |     | 295 |     |     |     |     |     | 300 |     |     |     |     |
| Gln | Ala | Arg | Thr | Ser | His | Leu | Leu | Pro | Asn | Pro | Gly | Ser | Pro | Thr | Lys |
| 305 |     |     |     | 310 |     |     |     |     |     | 315 |     |     |     | 320 |     |
| Val | Tyr | Leu | Glu | Ile | Cys | His | Thr | Ala | Asn | Leu | Ser | Tyr | Pro | Lys | Pro |
|     |     |     | 325 |     |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Leu | Leu | Arg | His | Tyr | Glu | His | Gln | Leu | Ser | Pro | Ala | Ile | Gln | Pro | Met |
|     |     |     | 340 |     |     |     | 345 |     |     |     |     |     | 350 |     |     |
| Lys | Thr | Leu | Leu | Pro | Leu | Arg | Lys | Glu | His | Leu | His | Leu | Ile | Arg | Asn |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Asn | Leu | Thr | Thr | Ser | Arg | Phe | Ile | Val | Ala | Gln | Gly | Cys | Ala | Tyr | Lys |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Tyr | His | Gln | Phe | Lys | Ile | Asn | Thr | Ser | Gly | Ile | Ala | Lys | Ala | Tyr | Ala |
| 385 |     |     |     | 390 |     |     |     |     |     | 395 |     |     |     | 400 |     |
| Ile | Leu | Leu | Pro | Lys | Val | Pro | Asp | Gly | Cys | Tyr | Glu | Tyr | Ser | Lys | Gly |
|     |     |     | 405 |     |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Glu | Ala | Tyr | Gln | Ile | Gly | Phe | Gly | Glu | Ile | Arg | Tyr | Lys | Leu | Lys | Ser |
|     |     |     | 420 |     |     |     | 425 |     |     |     |     |     | 430 |     |     |
| Ser | His | Pro | Leu | Thr | Gln | Leu | Asn | Asp | Lys | Gln | Val | Ile | Glu | Leu | Phe |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Asn | Cys | Gly | Ile | Asn | Phe | Ser | Ser | Ile | Tyr | Asn | Pro | Val | Asn | Pro | Leu |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Gln | Ala | Pro | Leu | Pro | Asn | Arg | Tyr | Ala | Phe | Phe | Asn | Gln | Gly | Asn | Leu |
| 465 |     |     |     | 470 |     |     |     |     |     | 475 |     |     |     | 480 |     |
| Tyr | Ile | Met | Asp | Ser | Pro | Val | Phe | Ile | Lys | Asn | Asp | Pro | Thr | Leu | Gln |
|     |     |     | 485 |     |     |     |     |     | 490 |     |     |     |     | 495 |     |
| Lys | Phe | Val | Thr | Ser | Glu | Thr | Glu | Lys | Gln | Glu | Gly | Ser | Ser | Glu | Thr |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     |     | 510 |     |
| Gln | Pro | Tyr | Ile | Ala | Phe | Val | Asp | Lys | Gly | Leu | Pro | Pro | Glu | Asp | Phe |
|     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |
| Lys | Glu | Phe | Val | Glu | Phe | Ile | His | Asn | Phe | Gly | Ile | Gln | Val | Pro | Lys |
|     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |
| Gly | His | Val | Leu | Val | Leu | Gly | Asp | Asn | Tyr | Pro | Met | Ser | Ala | Asp | Ser |
| 545 |     |     |     | 550 |     |     |     |     |     | 555 |     |     |     | 560 |     |
| Arg | Glu | Phe | Gly | Phe | Val | Pro | Met | Glu | Asn | Leu | Leu | Gly | Ser | Pro | Leu |
|     |     |     | 565 |     |     |     |     |     | 570 |     |     |     |     | 575 |     |
| Cys | Thr | Phe | Trp | Pro | Ile | Gly | Arg | Met | Gly | Arg | Leu | Thr | Gly | Val | Ser |
|     |     |     | 580 |     |     |     | 585 |     |     |     |     |     | 590 |     |     |
| Ala | Pro | Thr | Thr | Leu | Ser | Gly | Tyr | Leu | Val | Ser | Gly | Ile | Ala | Leu | Ala |
|     |     | 595 |     |     |     |     | 600 |     |     |     |     | 605 |     |     |     |

Thr Gly Leu Ser Leu Ile Gly Tyr Val Tyr Tyr Gln Lys Arg Arg Arg  
 610 615 620  
 Leu Phe Pro Lys Lys Glu Glu Lys Asn His Lys Lys  
 625 630 635  
 <210>129  
 <211>276  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>129  
 Gln Leu Gln Asn Arg Tyr Pro Ile Met Pro Asn Asp Ser Ser Thr Tyr  
 1 5 10 15  
 Phe Glu Arg Ile Leu Gln Lys Tyr Leu Met Lys Lys Gln Gly Lys Thr  
 20 25 30  
 Leu Phe Leu Phe Leu Phe Leu Ser Phe Leu Phe Ser Thr Ala Phe Ser  
 35 40 45  
 Gly Leu Phe Ala Ser Gln Thr Ser Ser Leu Arg Thr Ile Gln Glu Asn  
 50 55 60  
 Ile Phe Leu Ala Lys Thr Gly Asp Tyr Thr Val Leu Ser Arg Gly Ser  
 65 70 75 80  
 Gln Arg Thr Phe Val Leu Val Lys Ser Thr Thr Pro Lys Thr Val Trp  
 85 90 95  
 Ile Glu Ile Ile His Phe Pro Cys Ile Ala His Lys Glu Arg Pro Ser  
 100 105 110  
 Leu Glu Gln Ala Ser Trp Lys Thr Val Ile His Gln Leu Glu Ser Pro  
 115 120 125  
 Ser Gln Val Phe Val Val Ser Leu Ser Ser Glu Gly Ser Gln Phe Phe  
 130 135 140  
 Ser Leu Asn Thr Arg Thr Lys Ser Leu Glu Pro Val Gly Lys Ser Thr  
 145 150 155 160  
 Thr Val Pro Ala Phe Leu Gln Ile Phe Asp Leu Pro Leu Ser Pro Ala  
 165 170 175  
 Pro Ala Asn Val Ile Lys Thr Lys Gly Lys Glu Asn Lys Pro Trp Ser  
 180 185 190  
 Pro Lys Val Ser Phe Glu Gly Ala Pro Leu Thr Ser Ile Ser Val Asn  
 195 200 205  
 Ala Trp Gln Gly Leu Trp Pro Lys Asp Arg Gly Pro Leu Ser Glu Thr  
 210 215 220  
 Gly Ile Leu Met Tyr Phe Thr Gln Pro Asp Ile Ser Val Phe Pro Leu  
 225 230 235 240  
 Trp Val Ser Ile Glu Thr Pro Lys Gly Thr Ser Ile Val Arg Ala Val  
 245 250 255  
 Asp Ile Gly His Gly Ala Thr Ser Pro Tyr Val Tyr Ser Leu Pro Asp  
 260 265 270  
 Ser Lys Thr Gln  
 275  
 <210>130  
 <211>109  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>130  
 Met Lys Lys Asn Thr His Pro Glu Tyr Arg Gln Val Leu Phe Val Asp  
 1 5 10 15  
 Xaa Ser Thr Gly Tyr Lys Phe Val Cys Gly Xaa Thr Tyr Gln Ser Glu  
 20 25 30  
 Lys Thr Glu Val Phe Glu Gly Lys Glu Tyr Pro Val Cys Tyr Val Ser  
 35 40 45  
 Val Ser Ser Ser Ser His Pro Phe Phe Thr Gly Ser Lys Lys Phe Val  
 50 55 60  
 Asp Ala Glu Gly Arg Val Asp Lys Phe Leu Lys Arg Tyr Ser Asn Val  
 65 70 75 80  
 Arg Gln Pro Ala Gln Gln Pro Gln Pro Glu Glu Asp Ala Leu Pro Ala  
 85 90 95  
 Ala Lys Gly Lys Lys Lys Val Val Thr Lys Lys Lys Lys  
 100 105

&lt;210&gt;131

&lt;211&gt;359

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;131

Gly Phe Met Lys Lys Lys Val Ala Glu Tyr Leu Asn Arg Leu Ala Glu  
 1 5 10 15  
 Val Glu Ile Lys Ile Ser Asn Pro Glu Ile Phe Ser Asn Ser Lys Glu  
 20 25 30  
 Tyr Ser Ala Leu Ser Lys Glu His Ser Tyr Leu Leu Glu Leu Lys Asn  
 35 40 45  
 Ala Tyr Asp Lys Ile Leu Asn Leu Glu Lys Val Leu Ala Asp Asp Lys  
 50 55 60  
 Gln Ala Leu Ala Ile Glu Lys Asp Pro Glu Met Val Val Met Leu Glu  
 65 70 75 80  
 Glu Gly Ile Asn Glu Asn Lys Val Glu Leu Glu Lys Leu Asn Lys Ile  
 85 90 95  
 Leu Glu Ser Leu Leu Val Pro Pro Asp Pro Asp Asp Asp Leu Asn Val  
 100 105 110  
 Ile Met Glu Leu Arg Ala Gly Thr Gly Gly Glu Glu Ala Ala Leu Phe  
 115 120 125  
 Val Gly Asp Cys Val Arg Met Tyr His Leu Tyr Ala Ser Ser Lys Gly  
 130 135 140  
 Trp Lys Tyr Glu Val Leu Ser Ala Ser Glu Ser Asp Leu Lys Gly Tyr  
 145 150 155 160  
 Lys Glu Tyr Val Met Gly Ile Ser Gly Thr Gly Val Lys Arg Leu Leu  
 165 170 175  
 Gln Tyr Glu Ala Gly Thr His Arg Val Gln Arg Val Pro Glu Thr Glu  
 180 185 190  
 Thr Gln Gly Arg Val His Thr Ser Ala Ile Thr Ile Ala Val Leu Pro  
 195 200 205  
 Glu Pro Ser Glu Glu Asp Thr Glu Leu Leu Ile Asn Glu Lys Asp Leu  
 210 215 220  
 Lys Ile Asp Thr Phe Arg Ala Ser Gly Ala Gly Gly Gln His Val Asn  
 225 230 235 240  
 Val Thr Asp Ser Ala Val Arg Ile Thr His Leu Pro Thr Gly Val Val  
 245 250 255  
 Val Thr Cys Gln Asp Glu Arg Ser Gln His Lys Asn Lys Asp Lys Ala  
 260 265 270  
 Met Arg Ile Leu Lys Ala Arg Ile Arg Asp Ala Glu Met Gln Lys Arg  
 275 280 285  
 His Asn Glu Ala Ser Ala Met Arg Ser Ala Gln Val Gly Ser Gly Asp  
 290 295 300  
 Arg Ser Glu Arg Ile Arg Thr Tyr Asn Phe Ser Gln Asn Arg Val Thr  
 305 310 315 320  
 Asp His Arg Ile Gly Leu Thr Leu Tyr Asn Leu Asp Lys Val Met Glu  
 325 330 335  
 Gly Asp Leu Asp Pro Ile Thr Thr Ala Met Val Ser His Ala Tyr His  
 340 345 350  
 Gln Leu Leu Glu His Gly Asn  
 355

&lt;210&gt;132

&lt;211&gt;296

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;132

Met Pro Thr Thr Ser Tyr Ser Asn Met Glu Ile Lys Lys Ala Ile Gln  
 1 5 10 15  
 Glu Gly Thr Ala Tyr Leu Asp Tyr Tyr Gly Val Pro Leu Ser Asp Cys  
 20 25 30  
 Glu Ala Leu Tyr Ile Leu Met Asp Leu Leu Glu Val Ser Ser Arg Ala  
 35 40 45  
 Lys Leu Phe Asp Leu Val Gly Ile Ser Glu Thr Met Leu Met Glu Tyr  
 50 55 60



Arg Lys Arg Leu Ala Leu Arg Gly Gln Arg Cys Pro Thr Ala Tyr Leu  
 65 70 75 80  
 Asn Gly Ala Val Ser Phe Leu Gly Leu Arg Leu Arg Val Asp Ser Arg  
 85 90 95  
 Val Leu Ile Pro Arg Thr Glu Thr Glu Leu Leu Ala Glu Tyr Ile Ile  
 100 105 110  
 Asn Tyr Leu Leu Ser His Ser Glu Ile Gln Thr Phe Tyr Asp Ile Cys  
 115 120 125  
 Cys Gly Ser Gly Cys Leu Gly Leu Ala Ile Lys Lys Ser Cys Pro His  
 130 135 140  
 Val Glu Val Val Leu Ser Asp Val Cys Pro Gln Ala Val Ala Val Ala  
 145 150 155 160  
 Asn Glu Asn Ala Lys Ser Asn Gly Leu Asp Val Lys Ile Leu Leu Gly  
 165 170 175  
 Asp Leu Ser Ala Pro Tyr Thr Arg Pro Ala Asp Ala Phe Val Cys Asn  
 180 185 190  
 Pro Pro Tyr Leu Ser Phe Asn Glu Ile Ile His Ile Asp Pro Glu Val  
 195 200 205  
 Arg Cys Tyr Glu Pro Trp Lys Ala Leu Val Gly Gly Ser Thr Gly Leu  
 210 215 220  
 Glu Phe Tyr Gln Arg Ile Ala Gln Glu Leu Pro Lys Ile Val Thr Ser  
 225 230 235 240  
 Thr Gly Val Gly Trp Leu Glu Ile Gly Ser Ser Gln Gly Glu Ser Ile  
 245 250 255  
 Lys Asn Ile Phe Ser Lys His Gly Ile Tyr Gly Arg Leu His Gln Asp  
 260 265 270  
 Leu Ser Gly Arg Asp Arg Ile Phe Phe Leu Glu Met Asp Gly Arg Asp  
 275 280 285  
 Pro Val Ser Ser Gly Ala Tyr Ser  
 290 295

&lt;210&gt;133

&lt;211&gt;448

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;133

Met Ile Asn Ser Leu Ser Gln Lys Leu Ser Ser Ile Phe Ser Phe Leu  
 1 5 10 15  
 Val Ser Ser Arg Arg Ile Asn Glu Glu Asn Ile Ser Glu Ser Ile Arg  
 20 25 30  
 Glu Val Arg Leu Ala Leu Leu Asp Ala Asp Val Asn Tyr His Val Val  
 35 40 45  
 Lys Asp Phe Ile Ser Lys Val Lys Xaa Lys Ile Leu Gly Glu Glu Ile  
 50 55 60  
 Trp Lys His Val Ser Pro Gly Lys Gln Phe Ile Arg Cys Leu His Glu  
 65 70 75 80  
 Glu Leu Val Ala Phe Leu Ser Asp Gly Arg Glu Glu Phe Thr Ile Gln  
 85 90 95  
 Lys Thr Pro Ser Ile Ile Leu Leu Cys Gly Leu Gln Gly Ala Gly Lys  
 100 105 110  
 Thr Thr Thr Ala Ala Lys Leu Ala Asp Tyr Val Ile Lys Asn Lys Lys  
 115 120 125  
 Ala Lys Lys Val Leu Val Val Pro Cys Asp Leu Lys Arg Phe Ala Ala  
 130 135 140  
 Val Asp Gln Leu Lys Ile Leu Val Ala Gln Thr Lys Ala Glu Phe Tyr  
 145 150 155 160  
 Gln Ser Gln Glu Asn Lys Pro Ile Asp Val Val Val Lys Ala Leu Ala  
 165 170 175  
 Tyr Ala Lys Glu Asn Gly His Asp Phe Val Ile Leu Asp Thr Ala Gly  
 180 185 190  
 Arg Leu Asn Ile Asp Asn Glu Leu Met Glu Glu Leu Thr Ala Ile Gln  
 195 200 205  
 Lys Val Ser Gln Ala Asn Glu Arg Leu Phe Val Met Asn Val Ala Met  
 210 215 220  
 Gly Gln Asp Val Leu Ala Thr Val Gln Ala Phe Asp Gln Ser Leu Asp

|                     |   |     |     |     |     |     |
|---------------------|---|-----|-----|-----|-----|-----|
| 225                 |   | 230 |     | 235 |     | 240 |
| Leu Thr Gly Val     | Ile Leu Ser Met Thr Asp Gly Asp Ala Arg Ala Gly |     |     |     |     |     |
|                     | 245   |     | 250 |     | 255 |     |
| Ala Val Phe Ser     | Ile Lys His Val Leu Gly Lys Pro Ile Lys Phe Glu |     |     |     |     |     |
|                     | 260   |     | 265 |     | 270 |     |
| Gly Cys Gly Glu Arg | Ile Gln Asp Leu Arg Ser Phe Asp Pro Gln Ser     |     |     |     |     |     |
|                     | 275   |     | 280 |     | 285 |     |
| Met Ala Glu Arg Ile | Leu Gly Met Gly Asp Thr Ile Asn Phe Val Lys     |     |     |     |     |     |
|                     | 290   |     | 295 |     | 300 |     |
| Glu Met Arg Glu Tyr | Ile Ser Glu Glu Glu Asp Ala Glu Leu Gly Lys     |     |     |     |     |     |
|                     | 305   |     | 310 |     | 315 |     |
| Lys Leu Val Thr Ala | Ala Phe Thr Tyr Glu Asp Tyr Tyr Lys Gln Met     |     |     |     |     |     |
|                     | 325   |     | 330 |     | 335 |     |
| Lys Ala Phe Arg Arg | Met Gly Pro Leu Arg Lys Leu Leu Gly Met Met     |     |     |     |     |     |
|                     | 340   |     | 345 |     | 350 |     |
| Pro Gly Phe Asn Asn | Ala Lys Pro Ser Gln Lys Glu Ile Glu Asp Ser     |     |     |     |     |     |
|                     | 355   |     | 360 |     | 365 |     |
| Glu Gln Gln Met Lys | Arg Thr Glu Ala Ile Ile Leu Ser Met Thr Pro     |     |     |     |     |     |
|                     | 370   |     | 375 |     | 380 |     |
| Glu Glu Arg Lys Glu | Leu Val Glu Leu Asp Met Ser Arg Met Lys Arg     |     |     |     |     |     |
|                     | 385   |     | 390 |     | 395 |     |
| Ile Ala Ser Gly Cys | Gly Leu Thr Leu Gly Asp Val Asn Gln Phe Arg     |     |     |     |     |     |
|                     | 405   |     | 410 |     | 415 |     |
| Lys Gln Met Ser Gln | Ser Lys Lys Phe Phe Lys Gly Met Ser Lys Gly     |     |     |     |     |     |
|                     | 420   |     | 425 |     | 430 |     |
| Lys Met Glu Gln Val | Arg Lys Lys Met Ser Gly Gly Asn Gln Trp Arg     |     |     |     |     |     |
|                     | 435   |     | 440 |     | 445 |     |

&lt;210&gt;134

&lt;211&gt;208

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;134

|                     |   |
|---------------------|---|
| Met Lys Ile Asp Ile | Leu Ser Leu Ser Pro Gly Tyr Phe Asp Gly Pro |
| 1                   | 5 10 15                                     |
| Leu Gln Thr Ser Ile | Leu Gly Arg Ala Ile Lys Gln Arg Leu Leu Asp |
|                     | 20 25 30                                    |
| Val Gln Leu Thr Asn | Leu Arg Asp Phe Gly Leu Gly Lys Trp Lys Gln |
|                     | 35 40 45                                    |
| Val Asp Asp Thr Pro | Phe Ser Gly Gly Gly Met Leu Leu Met Ala Glu |
|                     | 50 55 60                                    |
| Pro Val Thr Ser Ala | Ile Arg Ser Val Arg Lys Glu Asn Ser Lys Val |
|                     | 65 70 75 80                                 |
| Ile Tyr Leu Ser Pro | Gln Gly Ala Leu Leu Thr Ala Glu Lys Ser Arg |
|                     | 85 90 95                                    |
| Glu Leu Ala Ala Ser | His Leu Ile Leu Cys Gly His Tyr Glu         |
|                     | 100 105 110                                 |
| Gly Ile Asp Glu Arg | Ala Ile Glu Ser Glu Val Asp Glu Glu Ile Ser |
|                     | 115 120 125                                 |
| Ile Gly Asp Tyr Val | Leu Thr Asn Gly Gly Ile Ala Ala Leu Val Leu |
|                     | 130 135 140                                 |
| Ile Asp Ala Val Ser | Arg Phe Ile Pro Gly Val Leu Gly Asn Gln Glu |
|                     | 145 150 155 160                             |
| Ser Ala Glu Arg Asp | Ser Leu Glu Asn Gly Leu Leu Glu Gly Pro Gln |
|                     | 165 170 175                                 |
| Tyr Thr Arg Pro Arg | Glu Phe Glu Gly Lys Glu Val Pro Glu Val Leu |
|                     | 180 185 190                                 |
| Leu Gln Gly Asp His | Lys Ala Ile Ser Ser Val Glu Ile Gly Ala Lys |
|                     | 195 200 205                                 |

&lt;210&gt;135

&lt;211&gt;189

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;135

Lys Asp Leu Ser Ile His Ala Leu Glu Ser Leu Lys Gly Lys Lys Phe

1 5 10 15  
 Gln Lys Tyr Cys Cys Lys Gly Ile Thr Lys Pro Phe His Gln Trp Arg  
 20 25 30  
 Leu Glu Gln Ser Glu Arg Arg Thr Tyr Glu Arg Arg Pro Asp Leu Tyr  
 35 40 45  
 Leu Asn Tyr Leu Tyr Lys Arg Ser Ile Asp His Lys Phe Asp Glu Glu  
 50 55 60  
 Thr Thr Thr Asn Arg Asp His Phe Lys Cys Asp Lys Ile Ser Val Val  
 65 70 75 80  
 Leu Glu Val Asn Lys Leu Lys Arg Ala Lys Asn Phe Tyr Cys Lys Val  
 85 90 95  
 Phe Gly Leu Asp Ala Met Ser Cys Glu Asn Lys Phe Cys Leu Pro His  
 100 105 110  
 Glu Gly Lys Thr Ile Phe Trp Leu Arg Glu Val Gln Ala Glu Lys Lys  
 115 120 125  
 Asn Ile Val Thr Leu Ser Leu Ser Leu Asp Cys Ala Cys Glu Glu Asp  
 130 135 140  
 Phe Cys Tyr Leu Leu Arg Arg Trp Glu Leu Phe Gly Gly Lys Leu Leu  
 145 150 155 160  
 Glu Lys Gln Ala Asp Glu His Ala Val Trp Ala Leu Ala Gln Asp Leu  
 165 170 175  
 Asp Gly His Ala Trp Ile Phe Ser Trp His Arg Met Lys  
 180 185

&lt;210&gt;136

&lt;211&gt;121

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;136

Met Val Asn Leu Leu Lys Glu Leu Glu Gln Glu Gln Cys Arg Asn Asp  
 1 5 10 15  
 Leu Pro Glu Phe His Val Gly Asp Thr Ile Arg Leu Ala Thr Lys Ile  
 20 25 30  
 Ser Glu Gly Gly Lys Glu Arg Val Gln Val Phe Gln Gly Thr Val Met  
 35 40 45  
 Ala Arg Arg Gly Gly Gly Ser Gly Glu Thr Val Ser Leu His Arg Val  
 50 55 60  
 Ala Tyr Gly Glu Gly Met Glu Lys Ser Phe Leu Leu Asn Ser Pro Arg  
 65 70 75 80  
 Ile Val Ser Ile Glu Ile Val Lys Arg Gly Lys Val Ala Arg Ala Arg  
 85 90 95  
 Leu Tyr Tyr Leu Arg Gly Lys Thr Gly Lys Ala Ala Lys Val Lys Glu  
 100 105 110  
 Phe Val Gly Pro Arg Ser Ser Lys Lys  
 115 120

&lt;210&gt;137

&lt;211&gt;214

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;137

Met Asn Thr Ser Ile Ser Glu Ile Gln Arg Phe Leu Ser Met Ile Ala  
 1 5 10 15  
 Phe Glu Lys Glu Leu Val Ser Glu Asp Phe Ser Val Val Ala Gly Ile  
 20 25 30  
 Asp Glu Ala Gly Arg Gly Pro Leu Ala Gly Pro Val Val Ala Ser Ala  
 35 40 45  
 Cys Ile Leu Pro Lys Gly Lys Val Phe Pro Gly Val Asn Asp Ser Lys  
 50 55 60  
 Lys Leu Ser Pro Lys Gln Arg Ala Gln Val Arg Asp Ala Leu Met Gln  
 65 70 75 80  
 Asp Pro Glu Val Cys Phe Gly Ile Gly Val Ile Ser Val Glu Arg Ile  
 85 90 95  
 Asp Gln Val Asn Ile Leu Glu Ala Thr Lys Glu Ala Met Leu Gln Ala  
 100 105 110  
 Ile Ser Ser Leu Pro Ile Ser Pro Asp Ile Leu Leu Val Asp Gly Leu

115 120 125  
 Tyr Leu Pro His Asp Ile Pro Cys Lys Lys Ile Ile Gln Gly Asp Ala  
 130 135 140  
 Lys Ser Ala Ser Ile Ala Ala Ser Ile Leu Ala Lys Glu His Arg  
 145 150 155 160  
 Asp Asp Leu Met Leu Gln Leu His Arg Leu Tyr Pro Glu Tyr Gly Phe  
 165 170 175  
 Asp Arg His Lys Gly Tyr Gly Thr Ser Leu His Val Glu Ala Ile Arg  
 180 185 190  
 Arg Tyr Gly Pro Ser Pro Cys His Arg Lys Ser Phe Ser Pro Ile Lys  
 195 200 205  
 Gln Met Cys Ala Ile Val  
 210

&lt;210&gt;138

&lt;211&gt;209

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;138

Val Cys Tyr Cys Met Asn Lys Ile Leu Val Asp Ser Pro Phe Ser Pro  
 1 5 10 15  
 Asp His Gln Lys Cys Cys Pro Lys Leu Phe Thr Ile Ser Ala Pro Ala  
 20 25 30  
 Gly Val Gly Lys Thr Thr Leu Val Arg Met Leu Glu Gln Glu Phe Ser  
 35 40 45  
 Ser Ala Phe Ala Glu Thr Ile Ser Val Thr Thr Arg Lys Pro Arg Glu  
 50 55 60  
 Gly Glu Val Pro Gly Lys Asp Tyr His Phe Val Ser His Glu Glu Phe  
 65 70 75 80  
 Gln Arg Leu Leu Asp Arg Gln Ala Leu Leu Glu Trp Val Phe Leu Phe  
 85 90 95  
 Gly Glu Cys Tyr Gly Thr Ser Met Leu Glu Ile Glu Arg Ile Trp Ser  
 100 105 110  
 Leu Gly Lys His Ala Val Ala Val Ile Asp Ile Gln Gly Ala Leu Phe  
 115 120 125  
 Ile Arg Ser Arg Met Pro Ser Val Ser Ile Phe Ile Ala Pro Pro Ser  
 130 135 140  
 Gln Glu Glu Leu Glu Arg Arg Leu Ala Ser Arg Gly Ser Glu Glu Gly  
 145 150 155 160  
 Ser Gln Arg Lys Glu Arg Leu Glu His Ser Leu Ile Glu Leu Ala Ala  
 165 170 175  
 Ala Asn Gln Phe Asp Tyr Val Ile Ile Asn Asp Asp Leu Asn Gln Ala  
 180 185 190  
 Tyr Arg Val Leu Lys Ser Ile Phe Ile Ala Glu Glu His Arg Asn Ile  
 195 200 205  
 Leu

&lt;210&gt;139

&lt;211&gt;100

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;139

Glu His Ile Met Ile Lys Lys Asp Arg Phe Thr Asn Glu Lys Leu Asn  
 1 5 10 15  
 Lys Leu Phe Asp Ser Pro Phe Ser Leu Val Asn Tyr Ala Ile Lys Gln  
 20 25 30  
 Ala Lys Ile Lys Ile Ala Lys Gly Asp Val Arg Ser Ser Asn Val Ala  
 35 40 45  
 Ile Glu Thr Leu Val Leu Leu Asp Arg Glu Gly Ile Gln Pro Glu Phe  
 50 55 60  
 Thr Glu Glu Ile Val Val Thr Ala Ser Pro Thr Val Glu Arg Lys Arg  
 65 70 75 80  
 Ser Glu His Thr Asn Ser Arg Lys Lys Asp Pro Ser Ala Tyr Thr Trp  
 85 90 95  
 Ser Asp Val Lys

100

<210>140  
 <211>554  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>140

Cys Lys Val Met Pro Gln Lys Val Leu Ile Thr Ser Ala Leu Pro Tyr  
 1 5 10 15  
 Ala Asn Gly Pro Leu His Phe Gly His Ile Ala Gly Val Tyr Leu Pro  
 20 25 30  
 Ala Asp Val Tyr Ala Arg Phe Arg Arg Leu Leu Gly Asp Asp Val Leu  
 35 40 45  
 Tyr Ile Cys Gly Ser Asp Glu Phe Gly Ile Ala Ile Thr Leu Asn Ala  
 50 55 60  
 Asp Arg Glu Gly Leu Gly Tyr Gln Glu Tyr Val Asp Met Tyr His Lys  
 65 70 75 80  
 Leu His Lys Asp Thr Phe Glu Lys Leu Gly Phe Ala Leu Asp Phe Phe  
 85 90 95  
 Ser Arg Thr Thr Asn Pro Phe His Ala Glu Leu Val Gln Asp Phe Tyr  
 100 105 110  
 Ser Gln Leu Lys Ala Ser Gly Leu Ile Glu Asn Arg Ile Ser Glu Gln  
 115 120 125  
 Leu Tyr Ser Glu Gln Glu Gln Arg Phe Leu Ala Asp Arg Tyr Val Glu  
 130 135 140  
 Gly Thr Cys Pro Arg Cys Gly Phe Asp His Ala Arg Gly Asp Glu Cys  
 145 150 155 160  
 Gln Ser Cys Gly Ala Asp Tyr Glu Ala Ile Asp Leu Ile Asp Pro Lys  
 165 170 175  
 Ser Lys Ile Ser Gly Val Glu Leu Val Lys Lys Glu Thr Glu His Ser  
 180 185 190  
 Tyr Phe Leu Leu Asp Arg Met Lys Asp Ala Leu Leu Ser Phe Ile Gln  
 195 200 205  
 Gly Cys Tyr Leu Pro Asp His Val Arg Lys Phe Val Val Asp Tyr Ile  
 210 215 220  
 Glu His Val Arg Ser Arg Ala Ile Thr Arg Asp Leu Ser Trp Gly Ile  
 225 230 235 240  
 Pro Val Pro Asp Phe Pro Gly Lys Val Phe Tyr Val Trp Phe Asp Ala  
 245 250 255  
 Pro Ile Gly Tyr Ile Ser Gly Thr Met Glu Trp Ala Ala Ser Gln Gly  
 260 265 270  
 Asn Pro Asp Glu Trp Lys Arg Phe Trp Leu Glu Asp Gly Val Glu Tyr  
 275 280 285  
 Val Gln Phe Ile Gly Lys Asp Asn Leu Pro Phe His Ser Val Val Phe  
 290 295 300  
 Pro Ala Met Glu Leu Gly Gln Lys Leu Asp Tyr Lys Lys Val Asp Ala  
 305 310 315 320  
 Leu Val Val Ser Glu Phe Tyr Leu Leu Glu Gly Arg Gln Phe Ser Lys  
 325 330 335  
 Ser Glu Gly Asn Tyr Val Asp Met Asp Lys Phe Leu Ser Ser Tyr Ser  
 340 345 350  
 Leu Asp Lys Leu Arg Tyr Val Leu Ala Ala Thr Ala Pro Glu Thr Ser  
 355 360 365  
 Asp Ser Glu Phe Thr Phe Leu Asp Phe Lys Thr Arg Cys Asn Ser Glu  
 370 375 380  
 Leu Val Gly Lys Phe Gly Asn Phe Ile Asn Arg Val Leu Ala Phe Ala  
 385 390 395 400  
 Glu Lys Asn His Tyr Asp Lys Leu Ser Tyr His Ser Val Val Leu Glu  
 405 410 415  
 Asp Ser Asp Arg Ala Phe Leu Glu Glu Val Arg Gln Leu Val Arg Asp  
 420 425 430  
 Ala Glu Lys Cys Tyr Arg Glu Tyr Ser Leu Arg Lys Ala Thr Ser Val  
 435 440 445  
 Ile Met Ser Leu Ala Ala Leu Gly Asn Val Tyr Phe Asn Gln Gln Ala  
 450 455 460

Pro Trp Lys Leu Leu Lys Glu Gly Thr Arg Glu Arg Val Glu Ala Ile  
 465 470 475 480  
 Leu Phe Cys Ala Cys Tyr Cys Gln Lys Leu Leu Ala Leu Ile Ser Tyr  
 485 490 495  
 Pro Ile Ile Pro Glu Ser Ala Val Ala Ile Trp Glu Met Ile Ser Pro  
 500 505 510  
 Lys Ser Leu Glu Asn Cys Asn Leu Asp Thr Met Tyr Ala Arg Asp Leu  
 515 520 525  
 Trp Lys Glu Glu Ile Leu Asp Val Ile Asn Glu Glu Phe His Leu Lys  
 530 535 540  
 Ser Pro Arg Leu Leu Phe Thr Thr Val Glu  
 545 550  
 <210>141  
 <211>408  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>141  
 Ser Gln Ala His Phe Ile Phe Phe Glu Glu Asn Pro Phe Tyr Arg Arg  
 1 5 10 15  
 Arg Lys Ser Asn Cys Leu Gly Arg Gly Lys Leu Ser Ile Asp Leu Ala  
 20 25 30  
 Glu Gln Gln Arg Glu Ala Ile Lys Ala Cys Phe Ser Glu Lys Leu Leu  
 35 40 45  
 Ile Ile Thr Gly Gly Pro Gly Thr Gly Lys Ser Thr Ile Thr Gln Ala  
 50 55 60  
 Ile Leu Lys Ile Phe Glu Gln Val Thr His Lys Ile Ile Leu Ala Ala  
 65 70 75 80  
 Pro Thr Gly Lys Ala Ala Lys Arg Met Thr Glu Ile Thr Gln Lys His  
 85 90 95  
 Ser Val Thr Ile His Ala Leu Leu Gln Tyr Asp Phe Lys Thr Lys Ser  
 100 105 110  
 Phe Arg Lys Asn His Asp Asn Pro Ile Asp Cys Asp Leu Ile Ile Val  
 115 120 125  
 Asp Glu Ser Gly Met Met Asp Thr His Leu Leu His His Phe Leu Lys  
 130 135 140  
 Ala Leu Pro Asp Tyr Thr Thr Leu Val Phe Ile Gly Asp Ile His Gln  
 145 150 155 160  
 Leu Pro Ser Val Gly Pro Gly Asn Ile Leu Lys Asp Leu Ile Thr Ser  
 165 170 175  
 Asn Lys Met Thr Val Ile Arg Leu Asn Lys Ile Phe Arg Gln Val His  
 180 185 190  
 Asp Ser Gly Ile Val Thr Asn Ala His Arg Val Asn Glu Gly Glu Leu  
 195 200 205  
 Pro Ile Leu Tyr Ser Glu Thr Gly Arg Arg Asp Phe Leu Phe Phe Gln  
 210 215 220  
 Lys Asp Asp Gln Glu Glu Ala Leu Asn His Ile Ile His Leu Val Thr  
 225 230 235 240  
 Lys Phe Val Pro Gln Lys Tyr His Ile Tyr Pro Gln Asp Ile Gln Val  
 245 250 255  
 Leu Ala Pro Met Lys Lys Gly Thr Leu Gly Ile Tyr Asn Leu Asn Lys  
 260 265 270  
 Ala Leu Lys His Ala Leu Asn Pro Lys Lys Ala Asn Leu His Gly Arg  
 275 280 285  
 Phe Gln Ser Tyr Ala Val Gly Asp Lys Val Met Gln Ile Arg Asn Asn  
 290 295 300  
 Tyr Asn Lys Glu Val Phe Asn Gly Asp Ile Gly Tyr Val Ser Thr Ile  
 305 310 315 320  
 Asn Phe Glu Asp Lys Ala Val Val Val Arg Met Glu Gly Lys His Val  
 325 330 335  
 Gly Tyr Ser Phe Ser Glu Leu Asp Asp Leu Val Leu Ala Tyr Ala Thr  
 340 345 350  
 Ser Val His Lys Tyr Gln Gly Ser Glu Ser Pro Cys Ile Ile Ile Pro  
 355 360 365  
 Ile His Thr Ser His Phe Met Met Leu Tyr Arg Asn Leu Leu Tyr Thr

370 375 380  
 Ala Ile Thr Arg Gly Lys Lys Leu Val Ile Leu Val Gly Thr Lys Lys  
 385 390 395 400  
 Ala Ile Cys Tyr Cys Asn Lys Lys  
 405

&lt;210&gt;142

&lt;211&gt;313

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;142

Asn Ser Met Glu Lys Ile Cys Gly Tyr Leu Glu Gln Ile Leu Val Glu  
 1 5 10 15  
 Asn Lys Asp Ser Gly Asp Ile Thr Ala Tyr Ile Lys Ile Pro Asn Lys  
 20 25 30  
 Thr Thr Pro Ile Leu Ile Lys Gly Lys Leu Pro Gln Pro Leu Glu Leu  
 35 40 45  
 Gly Ser Pro Ile Gln Ile Tyr Gly Val Trp Ser His Ser Pro Ser Asn  
 50 55 60  
 Thr Lys Tyr Phe Gln Ile His Ser Tyr Asp Ser Pro Leu Leu Tyr Glu  
 65 70 75 80  
 Tyr Arg Gly Val Phe His Tyr Leu Thr Ser Lys Leu Ile Lys Gly Ile  
 85 90 95  
 Gly Pro Lys Ile Ala Glu Lys Ile Ile Glu Lys Phe Gln Glu Lys Thr  
 100 105 110  
 Cys Tyr Val Leu Asp Ile Thr Pro Glu Arg Leu Ser Glu Val Ser Gly  
 115 120 125  
 Ile Ser Glu Thr Arg Cys Val Ser Ile Cys Lys Gln Leu Cys Glu Gln  
 130 135 140  
 Lys Met Leu Arg Lys Thr Leu Leu Phe Leu Gln Glu Tyr Asn Ile Pro  
 145 150 155 160  
 Ile His Tyr Gly Val Arg Ile Phe Lys Lys Tyr Gln Glu Lys Ser Ile  
 165 170 175  
 Glu Lys Ile Cys Glu Asp Pro Phe Leu Leu Ala Arg Glu Met Glu Gly  
 180 185 190  
 Ile Gly Phe Lys Thr Ala Asp Phe Ile Ala Met Lys Leu Gly Val Pro  
 195 200 205  
 Arg Asn Ser Glu Ser Arg Leu Cys Ala Gly Ile Gln His Ser Leu Glu  
 210 215 220  
 Glu Leu Gln Glu Glu Gly His Thr Cys Tyr Pro Ile Glu Leu Leu Ile  
 225 230 235 240  
 Asp Val Val Ala Lys Leu Leu Asn Gln Asp Val Phe Asp Thr Pro Ile  
 245 250 255  
 Thr Leu Glu Glu Ile Asp Thr Gln Ile Leu Asn Met Gln Lys Arg Asn  
 260 265 270  
 Phe Tyr Ile Phe Lys Thr Phe Leu Gly His Ser Met Ser Gly His Val  
 275 280 285  
 Ile Ser Ile Ser Gln Arg Lys Leu Leu Phe Leu Ile Ser Ser Ala Phe  
 290 295 300  
 Tyr Phe Leu Arg Gly Glu Ser Val Leu  
 305 310

&lt;210&gt;143

&lt;211&gt;498

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;143

Ile Arg Ser Lys Gln Arg Thr Val Ala Ile Thr Leu Leu Val Leu Gly  
 1 5 10 15  
 Ile Leu Leu Ile Ala Ser Gly Ile Ile Phe Leu Ala Val Ala Ile Pro  
 20 25 30  
 Gly Leu Ser Ser Ala Val Ala Leu Gly Leu Gly Cys Gly Met Thr Ala  
 35 40 45  
 Leu Gly Thr Val Leu Leu Ile Thr Gly Leu Val Leu Leu Ile Arg Ser  
 50 55 60  
 Glu Lys Leu Ala Leu Glu Gln Val Glu Ile Lys Gln Ala Arg Thr Arg

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 65  |     | 70  |     | 75  |     | 80  |     |     |     |     |     |     |     |     |     |
| Val | Asn | Asn | Glu | Leu | Asp | Gln | Leu | Ser | Gln | Tyr | Val | Phe | Tyr | Thr | Glu |
|     |     | 85  |     |     |     | 90  |     |     |     |     |     |     |     | 95  |     |
| Asn | Val | Leu | Asp | Asn | Leu | Lys | Arg | Trp | Ser | Tyr | Arg | Asp | Leu | Gly | Phe |
|     |     | 100 |     |     |     | 105 |     |     |     |     |     |     | 110 |     |     |
| Val | Arg | Gln | Ala | Gln | Glu | Glu | Val | Thr | Asn | Leu | Glu | Gln | Asp | Ile | Glu |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     |     | 125 |     |     |
| Glu | Ile | Phe | Leu | Thr | Leu | Arg | Asp | Ile | Arg | Asn | Ala | Leu | Asp | Asn | Glu |
|     |     | 130 |     |     |     | 135 |     |     |     |     |     | 140 |     |     |     |
| Glu | Phe | Phe | Met | Thr | His | Ala | Lys | Gln | Cys | Leu | Ala | Gln | Val | Gly | Glu |
|     |     | 145 |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |
| Ser | Leu | Phe | Gln | Asp | Ala | Ser | Ile | Asp | Glu | Phe | Ile | Asn | Leu | Ala | His |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Leu | Ser | Glu | Ile | Arg | Gln | His | Leu | Asp | Ile | Asn | Asp | Pro | Arg | Trp | Ser |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     |     | 190 |     |
| Met | Ile | Thr | Lys | Lys | Val | Lys | Gly | Thr | Val | Val | Arg | Phe | Ile | Tyr | Val |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Ser | Thr | Met | Tyr | Lys | Gln | Ile | Lys | Ser | Asn | Phe | Glu | Lys | Ser | Asp | Phe |
|     |     | 210 |     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |
| Gly | Gln | Leu | Arg | Lys | Met | Leu | Leu | Asn | Asn | Tyr | Lys | Thr | Ile | Glu | Glu |
|     |     | 225 |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Val | Leu | Tyr | Gln | Ser | Phe | Gln | Arg | Gly | Tyr | Asn | Arg | Ala | Ala | Leu | Leu |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Ser | Glu | Lys | Thr | Arg | Ile | Ile | His | Thr | Ser | Ser | Leu | Leu | His | Trp | Glu |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     |     | 270 |     |
| Lys | Asp | Glu | Asp | Lys | His | Leu | Asn | Ile | Lys | Asn | Glu | Cys | Ala | Ser | Arg |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Leu | Glu | Asn | Phe | Lys | Lys | Phe | Arg | Thr | Leu | Phe | Leu | Gly | Leu | Ser | Glu |
|     |     | 290 |     |     |     |     | 295 |     |     |     | 300 |     |     |     |     |
| Glu | Asp | Val | Ile | Asp | Phe | Thr | Gly | Ala | Ser | Gly | Trp | Asp | Cys | Ser | Lys |
|     |     | 305 |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Leu | Pro | Arg | Lys | Glu | Val | Pro | Leu | Asp | Gly | Gly | Lys | Lys | Lys | Leu | Arg |
|     |     |     | 325 |     |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Phe | Lys | Arg | Thr | Phe | Ala | Asp | Glu | Gln | Val | Gly | Asp | Trp | Asp | Arg | Thr |
|     |     |     | 340 |     |     |     | 345 |     |     |     |     |     |     | 350 |     |
| Thr | Ser | Leu | Glu | His | Met | Thr | Pro | Gln | Glu | Glu | Asp | Pro | Leu | Asp | Arg |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Leu | Met | Asp | Gln | Val | Glu | Gln | Glu | Ala | Thr | Ser | Val | Leu | Lys | Asp | Gln |
|     |     | 370 |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Asp | Arg | Tyr | Trp | Lys | Glu | Ile | Glu | Thr | Ser | Glu | Ala | Lys | Phe | Arg | Ser |
|     |     | 385 |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Leu | Pro | Arg | Glu | Asp | Asp | Phe | Glu | Lys | Gln | Ser | Gln | Ile | Asp | Ser | Tyr |
|     |     |     | 405 |     |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Ile | Arg | Asp | Leu | Asp | Asp | His | Leu | Ser | Val | Trp | Ala | Asn | Gln | Leu | Ser |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Ala | Ala | Glu | Asp | Ala | Leu | Ile | Glu | Val | Thr | Asp | Val | Gln | Glu | His | Gly |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Asn | Arg | Glu | Met | Leu | Lys | Asn | Ile | Gln | Gln | Gly | Leu | Glu | Leu | Ile | Glu |
|     |     | 450 |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Asp | Ala | Val | Lys | Ala | Thr | Leu | Pro | Arg | Val | Asp | Phe | Ile | Gln | Glu | Leu |
|     |     | 465 |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Leu | Glu | Lys | Glu | Glu | Leu | Pro | Leu | Val | Ala | Ala | Arg | Met | Ser | Leu | Glu |
|     |     |     | 485 |     |     |     |     | 490 |     |     |     |     |     | 495 |     |

Asn Ser

&lt;210&gt;144

&lt;211&gt;538

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;144

Pro Phe Phe Ser Lys Pro Pro Glu Glu Ile Ser Gln Leu Glu Ser Tyr

1

5

10

15

Ile Arg Ser Ala Ala Asn Asp Leu Asn Thr Ile Lys Thr Trp Pro His

20

25

30



Lys Asp Gln Arg Leu Val Glu Thr Val Ser Arg Lys Leu Glu Arg Leu  
           35  40  45  
 Ala Ala Ala Gln Asn Tyr Met Ile Ser Glu Leu Cys Glu Ile Ser Glu  
           50  55  60  
 Ile Leu Glu Glu Glu Glu His His Leu Ile Leu Ala Gln Glu Ser Leu  
           65  70  75  80  
 Glu Trp Ile Gly Lys Ser Leu Phe Ser Thr Phe Leu Asp Met Glu Ser  
   85  90  95  
 Phe Leu Asn Leu Ser His Leu Ser Glu Val Arg Pro Tyr Leu Ala Val  
   100  105  110  
 Asn Asp Pro Arg Leu Leu Glu Ile Thr Glu Glu Ser Trp Glu Val Val  
   115  120  125  
 Ser His Phe Ile Asn Val Thr Ser Ala Phe Lys Lys Ala Gln Ile Leu  
   130  135  140  
 Phe Lys Asn Asn Glu His Ser Arg Met Lys Lys Lys Leu Glu Ser Val  
   145  150  155  160  
 Gln Glu Leu Leu Glu Thr Phe Ile Tyr Lys Ser Leu Lys Arg Ser Tyr  
   165  170  175  
 Arg Glu Leu Gly Cys Leu Ser Glu Lys Met Arg Ile Ile His Asp Asn  
   180  185  190  
 Pro Leu Phe Pro Trp Val Gln Asp Gln Gln Lys Tyr Ala His Ala Lys  
   195  200  205  
 Asn Glu Phe Gly Glu Ile Ala Arg Cys Leu Glu Glu Phe Glu Lys Thr  
   210  215  220  
 Phe Phe Trp Leu Asp Glu Glu Cys Ala Ile Ser Tyr Met Asp Cys Trp  
   225  230  235  240  
 Asp Phe Leu Asn Glu Ser Ile Gln Asn Lys Lys Ser Arg Val Asp Arg  
   245  250  255  
 Asp Tyr Ile Ser Thr Lys Lys Ile Ala Leu Lys Asp Arg Ala Arg Thr  
   260  265  270  
 Tyr Ala Lys Val Leu Leu Glu Glu Asn Pro Thr Thr Glu Gly Lys Ile  
   275  280  285  
 Asp Leu Gln Asp Ala Gln Arg Ala Phe Glu Arg Gln Ser Gln Glu Phe  
   290  295  300  
 Tyr Thr Leu Glu His Thr Glu Thr Lys Val Arg Leu Glu Ala Leu Gln  
   305  310  315  320  
 Gln Cys Phe Ser Asp Leu Arg Glu Ala Thr Asn Val Arg Gln Val Arg  
   325  330  335  
 Phe Thr Asn Ser Glu Asn Ala Asn Asp Leu Lys Glu Ser Phe Glu Lys  
   340  345  350  
 Ile Asp Lys Glu Arg Val Arg Tyr Gln Lys Glu Gln Arg Leu Tyr Trp  
   355  360  365  
 Glu Thr Ile Asp Arg Asn Glu Gln Glu Leu Arg Glu Glu Ile Gly Glu  
   370  375  380  
 Ser Leu Arg Leu Gln Asn Arg Arg Lys Gly Tyr Arg Ala Gly Tyr Asp  
   385  390  395  400  
 Ala Gly Arg Leu Lys Gly Leu Leu Arg Gln Trp Lys Lys Asn Leu Arg  
   405  410  415  
 Asp Val Glu Ala His Leu Glu Asp Ala Thr Met Asp Phe Glu His Glu  
   420  425  430  
 Val Ser Lys Ser Glu Leu Cys Ser Val Arg Ala Arg Leu Glu Val Leu  
   435  440  445  
 Glu Glu Glu Leu Met Asp Met Ser Pro Lys Val Ala Asp Ile Glu Glu  
   450  455  460  
 Leu Leu Ser Tyr Glu Glu Arg Cys Ile Leu Pro Ile Arg Glu Asn Leu  
   465  470  475  480  
 Glu Arg Ala Tyr Leu Gln Tyr Asn Lys Cys Ser Glu Ile Leu Ser Lys  
   485  490  495  
 Ala Lys Phe Leu Leu Ser Gly Arg Arg Ala Ile Ala Ser Phe Gly Ser  
   500  505  510  
 Glu Ser Lys Arg Gly Gly Cys Pro Val Lys Thr Ser Thr Gly Lys Met  
   515  520  525  
 Ser Arg Glu Gly Pro Lys Val Arg Asn Ile  
   530  535

&lt;210&gt;145

&lt;211&gt;201

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;145

Lys Gly His Thr Ser Asn Ile Ile Ser Val Leu Lys Phe Tyr Pro Arg  
 1 5 10 15  
 Gln Ser Phe Phe Phe Pro Glu Asp Glu Gln Leu Leu Val Ser Glu Ala  
 20 25 30  
 Asn Leu Arg Glu Val Gly Ala Gln Leu Lys Gln Val Gln Gly Lys Cys  
 35 40 45  
 Gln Glu Arg Ala Gln Lys Phe Ala Ile Phe Glu Lys His Ile Gln Glu  
 50 55 60  
 Gln Lys Ser Leu Ile Lys Glu Gln Val Arg Ser Phe Asp Leu Ala Gly  
 65 70 75 80  
 Val Gly Phe Leu Lys Ser Glu Leu Leu Ser Ile Ala Cys Asn Leu Tyr  
 85 90 95  
 Ile Lys Ala Val Val Lys Glu Ser Ile Pro Val Asp Val Pro Cys Met  
 100 105 110  
 Gln Leu Tyr Tyr Ser Tyr Tyr Glu Asp Asn Glu Ala Val Val Arg Asn  
 115 120 125  
 Arg Leu Leu Asn Met Thr Glu Arg Tyr Gln Asn Phe Lys Arg Ser Leu  
 130 135 140  
 Asn Ser Ile Gln Phe Asn Gly Asp Val Leu Leu Arg Asp Pro Val Tyr  
 145 150 155 160  
 Gln Pro Glu Gly His Glu Thr Arg Leu Lys Glu Arg Glu Leu Gln Glu  
 165 170 175  
 Thr Thr Leu Ser Cys Lys Lys Leu Lys Val Ala Gln Asp Arg Leu Ser  
 180 185 190  
 Glu Leu Glu Ser Arg Leu Ser Arg Arg  
 195 200

&lt;210&gt;146

&lt;211&gt;259

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;146

Met Leu Arg Asn Gln Val Leu Val Tyr Cys Ser Glu Gly Val Ser Pro  
 1 5 10 15  
 Tyr Tyr Leu Arg His Thr Ile Arg Phe Leu Lys Tyr Tyr Ser Thr Gln  
 20 25 30  
 Glu Gly Ala Phe Asp Ile Leu Arg Val Xaa Gly Asn Phe Leu Ile Lys  
 35 40 45  
 Asn Pro Phe Trp Glu Glu Thr Thr Arg Leu Leu Val Phe Pro Gly Gly  
 50 55 60  
 Ala Asp Arg Pro Tyr His Arg Val Leu His Gly Leu Gly Thr Ala Arg  
 65 70 75 80  
 Ile Phe Gln Tyr Val Ser Glu Gly Gly Asn Phe Leu Gly Ile Cys Ala  
 85 90 95  
 Gly Ala Tyr Phe Gly Ser Lys Met Ile Tyr Phe Tyr Glu Pro Glu Gly  
 100 105 110  
 Ala Pro Leu Gln Gly Ala Arg Asp Leu Gly Phe Phe Pro Gly Thr Ala  
 115 120 125  
 Lys Gly Pro Ala Tyr Arg Gly Asn Phe Ser Tyr Val Ser Pro Ser Gly  
 130 135 140  
 Val Arg Val Ser Pro Gln Leu Phe Ser Asp Phe Gly Leu Gly Tyr Ala  
 145 150 155 160  
 Met Phe Asn Gly Gly Cys Phe Phe Glu Gly Ser Glu Gly Tyr Pro Gly  
 165 170 175  
 Val Asn Ile Glu Ser Arg Tyr Asp Asp Leu Pro Gly Lys Pro Ala Ser  
 180 185 190  
 Ile Val Ser Arg Ile Val Ser Lys Gly Leu Ala Val Leu Ser Gly Pro  
 195 200 205  
 His Ile Glu Tyr Leu Pro His Tyr Cys Arg Met Val Lys Glu Asn Val  
 210 215 220

Gln Lys Thr Arg Glu Phe Leu Gln Arg Glu Arg Thr Thr Leu Asp Arg  
 225 230 235 240  
 Tyr Cys Gln Asn Leu Val Gln Arg Leu Arg Gln Pro Ala Phe Ser Lys  
 245 250 255

Ala Asp Cys

<210>147

<211>396

<212>PRT

<213>Chlamydia pneumoniae

<400>147

Ser Ser Met Val Lys Cys Ser Ser Ile Ile His Glu Asn Lys Lys Pro  
 1 5 10 15  
 Ala Gln Leu Leu Pro Glu Ser Lys Phe Ala Ala Ile Thr Lys Leu Ser  
 20 25 30  
 Leu Ala Ile Leu Ser Leu Phe Leu Gly Ile Ala Ala Cys Ile Leu Ile  
 35 40 45  
 Ala Leu Ser Gly Leu Leu Pro Asn Thr Leu Leu Ile Ile Ala Leu Ser  
 50 55 60  
 Leu Ile Ser Ile Ile Val Leu Ser Thr Gly Ile Ser Leu Leu Ile Gly  
 65 70 75 80  
 Thr Gln Cys Ser Lys Ser Val Gln Lys Asp Glu Gln Lys Pro Lys Ser  
 85 90 95  
 Ile Phe Pro Lys Glu Thr Pro Ser Leu Asp Pro Trp Leu Leu Asn Pro  
 100 105 110  
 Leu Lys Asn Lys Ile Gln Ser Ser Glu Thr Leu Leu Leu Asp Pro Thr  
 115 120 125  
 Ser Ile Asn Leu Lys Asn Glu Leu Phe Phe Pro Ser Phe Glu Glu Trp  
 130 135 140  
 Lys Lys Ile Phe Leu Lys Asp Pro Asp Phe Leu Ile Lys Ser Ala Leu  
 145 150 155 160  
 Ala Asn Trp Lys Ile Leu Glu Gln Asp Glu Gln Tyr Ile Leu Ser His  
 165 170 175  
 Ile His Met Asp Pro Arg Ile Phe Val Thr Ser Glu Pro Leu Gln Lys  
 180 185 190  
 Thr Tyr Gln Lys Leu Gln Glu Lys His Val Asn Asn Leu Gly Ile Ala  
 195 200 205  
 Ser Gln Val Ser Leu Thr Asp Leu Gln Asn Lys Thr Gln Tyr Glu Asn  
 210 215 220  
 Asn Leu Ile Glu Thr Thr Thr Asn Glu Ile Thr Tyr Tyr Phe Pro Val  
 225 230 235 240  
 Val His Asn Pro Asp Ile Leu Arg Ser Glu Trp Asp Pro Ile Ser Asn  
 245 250 255  
 Gln Leu Tyr Leu Ile Phe Lys Lys Phe Phe Ile His Tyr His Asn Leu  
 260 265 270  
 Phe Ser Thr Ala Leu Glu Arg Asn Gln Ile Leu Leu Ile Asp Ser Leu  
 275 280 285  
 Asn Thr Gly Ser Ser Asn Pro Ile Ala Arg Gln Met Glu Leu Leu Ala  
 290 295 300  
 Phe Leu Cys Val Phe Glu Gln Leu Asp Tyr Asn Glu Asp Glu Tyr Thr  
 305 310 315 320  
 Ile Glu Pro Arg Asp Tyr Phe Asn Arg Phe Val Tyr Xaa Xaa Ser Xaa  
 325 330 335  
 Thr Ala Pro Gln Ile Gln Ser Phe Gly Leu Leu His Gly Tyr Glu Glu  
 340 345 350  
 Met Ser Tyr Ala Ser Asn Asn Ile Arg Asn Val Leu Thr His Ser Ile  
 355 360 365  
 Val Leu Cys Ser Pro Ile Leu Tyr Gln Leu Ile Thr Glu Phe Asp Thr  
 370 375 380  
 Thr Lys Ile His Ala Asp Asp Phe Asp Cys Leu Ile  
 385 390 395

<210>148

<211>266

<212>PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;148

Phe Ser Ser Leu Lys Lys Glu Arg Phe Ser Leu Ser Leu Ala Ile Phe  
 1 5 10 15  
 Leu Ile Phe Phe Phe Thr Ser Ala Tyr Val Phe Pro Ser Ile Cys Phe  
 20 25 30  
 Leu Glu Leu Phe Met Glu Asn Ala Met Ser Ser Ser Phe Val Tyr Asn  
 35 40 45  
 Gly Pro Ser Trp Ile Leu Lys Thr Ser Val Ala Gln Glu Val Phe Lys  
 50 55 60  
 Lys His Gly Lys Gly Ile Gln Val Leu Leu Ser Thr Ser Val Met Leu  
 65 70 75 80  
 Phe Ile Gly Leu Gly Val Cys Ala Phe Ile Xaa Pro Gln Xaa Leu Ile  
 85 90 95  
 Val Phe Val Leu Thr Ile Asp Leu Leu Met Leu Ala Ile Ser Leu Val  
 100 105 110  
 Leu Phe Leu Leu Lys Val Leu Tyr Ala Pro Ser Met Val Asp Arg Leu  
 115 120 125  
 Trp Cys Ser Glu Lys Gly Tyr Ala Leu His Gln His Glu Asn Gly Pro  
 130 135 140  
 Phe Leu Asp Val Lys Arg Val Gln Gln Ile Leu Leu Arg Ser Pro Tyr  
 145 150 155 160  
 Ile Lys Val Arg Ala Leu Trp Pro Ser Gly Asp Ile Pro Glu Asp Pro  
 165 170 175  
 Ser Gln Ala Ala Val Leu Leu Leu Ser Pro Trp Thr Phe Phe Ser Ser  
 180 185 190  
 Val Asp Val Glu Ala Leu Leu Pro Ser Pro Gln Glu Lys Glu Gly Lys  
 195 200 205  
 Tyr Ile Asp Pro Val Leu Pro Lys Leu Ser Arg Ile Glu Arg Val Ser  
 210 215 220  
 Leu Leu Val Phe Leu Ser Ala Phe Thr Leu Asp Asp Leu Asn Glu Gln  
 225 230 235 240  
 Gly Val Asn Pro Leu Met Asn Asn Glu Glu Phe Leu Phe Phe Ile Asn  
 245 250 255  
 Lys Lys Ala Arg Asp Met Gly Phe Arg Ile  
 260 265

&lt;210&gt;149

&lt;211&gt;119

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;149

His Gly Ile Gln Asp Leu Lys His Glu Ile Met Ser Ser Leu Glu Lys  
 1 5 10 15  
 Thr Gly Val Pro Leu Asp Pro Ser Met Ser Phe Gln Val Ser Gln Ala  
 20 25 30  
 Met Phe Ser Val Tyr Arg Tyr Leu Arg Gln Arg Asp Leu Thr Thr Ser  
 35 40 45  
 Glu Leu Arg Cys Phe His Leu Leu Ser Cys Phe Lys Gly Asp Val Val  
 50 55 60  
 His Cys Leu Ala Ser Phe Glu Asn Pro Lys Asp Leu Ala Asp Ser Asp  
 65 70 75 80  
 Phe Leu Glu Ala Cys Lys Asn Val Glu Trp Gly Glu Phe Ile Ser Ala  
 85 90 95  
 Cys Glu Lys Ala Leu Leu Lys Asn Pro Gln Gly Ile Ser Ile Lys Asp  
 100 105 110  
 Leu Lys Gln Phe Leu Val Arg  
 115

&lt;210&gt;150

&lt;211&gt;326

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;150

Ser Met Ile Glu Phe Ala Phe Val Pro His Thr Ser Val Thr Ala Asp  
 1 5 10 15

Arg Ile Glu Asp Arg Met Ala Cys Arg Met Asn Lys Leu Ser Thr Leu  
                     20                    25                    30  
 Ala Ile Thr Ser Leu Cys Val Leu Ile Ser Ser Val Cys Ile Met Ile  
                     35                    40                    45  
 Gly Ile Leu Cys Ile Ser Gly Thr Val Gly Thr Tyr Ala Phe Val Val  
                     50                    55                    60  
 Gly Ile Ile Phe Ser Val Leu Ala Leu Val Ala Cys Val Phe Phe Leu  
                     65                    70                    75                    80  
 Tyr Phe Phe Tyr Phe Ser Ser Glu Glu Phe Lys Cys Ala Ser Ser Gln  
                     85                    90                    95  
 Glu Phe Arg Phe Leu Pro Ile Pro Ala Val Val Ser Ala Leu Arg Ser  
                     100                    105                    110  
 Tyr Glu Tyr Ile Ser Gln Asp Ala Ile Asn Asp Val Ile Lys Asp Thr  
                     115                    120                    125  
 Met Gln Leu Ser Thr Leu Ser Ser Leu Leu Asp Pro Glu Ala Phe Phe  
                     130                    135                    140  
 Leu Glu Phe Pro Tyr Phe Asn Ser Leu Ile Val Asn His Ser Met Lys  
                     145                    150                    155                    160  
 Glu Ala Asp Arg Leu Ser Arg Glu Ala Phe Leu Ile Leu Leu Gly Glu  
                     165                    170                    175  
 Ile Thr Trp Lys Asp Cys Glu Thr Lys Ile Leu Pro Trp Leu Lys Asp  
                     180                    185                    190  
 Pro Asn Ile Thr Pro Asp Asp Phe Trp Lys Leu Leu Lys Asp His Phe  
                     195                    200                    205  
 Asp Leu Lys Asp Phe Lys Lys Arg Ile Ala Thr Trp Ile Arg Lys Ala  
                     210                    215                    220  
 Tyr Pro Glu Ile Arg Leu Pro Lys Lys His Cys Leu Asp Lys Ser Ile  
                     225                    230                    235                    240  
 Tyr Lys Gly Cys Cys Lys Phe Leu Leu Leu Ala Glu Asn Asp Val Gln  
                     245                    250                    255  
 Tyr Gln Arg Leu Leu His Lys Val Cys Tyr Phe Ser Gly Glu Phe Pro  
                     260                    265                    270  
 Ala Met Val Leu Gly Leu Gly Ser Glu Val Pro Met Val Leu Gly Leu  
                     275                    280                    285  
 Pro Lys Val Pro Lys Asp Leu Thr Trp Glu Met Phe Met Glu Asn Met  
                     290                    295                    300  
 Pro Val Leu Leu Gln Ser Lys Arg Glu Gly His Trp Lys Ile Ser Leu  
                     305                    310                    315                    320  
 Glu Asp Val Ala Ser Leu  
                     325

&lt;210&gt;151

&lt;211&gt;257

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;151

Met Phe Lys Leu Leu Lys Asn Leu Phe Leu Ile Gly Cys Cys Ile Val  
                     1                    5                    10                    15  
 Gly Tyr Phe Trp Met Arg Lys Glu Ser Ile Val Glu Gln Trp Leu Ser  
                     20                    25                    30  
 Asn Arg Leu His Thr Gln Val Thr Val Gly Arg Val Ser Ile Arg Thr  
                     35                    40                    45  
 Ser Gly Ile Lys Ile Arg His Ile Cys Ile His Asn Pro Leu Ala Ser  
                     50                    55                    60  
 Glu Arg Phe Pro Tyr Ala Ala Glu Ile Glu Tyr Ala Asp Val Arg Phe  
                     65                    70                    75                    80  
 Ser Ser Ile Ser Met Leu Leu Thr Lys Gln Leu Glu Ile Ser Glu Leu  
                     85                    90                    95  
 Ile Ile His Gly Ala Asn Phe Thr Ile Phe Pro Tyr Asp Ser His Gly  
                     100                    105                    110  
 Thr Lys Thr Asn Trp Ser Leu Val Trp Lys Asn Phe His Pro Gln Lys  
                     115                    120                    125  
 Glu Thr Pro Ser Asn Leu Trp Ile Asp Arg Ala Pro Val Leu Ile Arg  
                     130                    135                    140  
 Arg Cys Leu Phe Leu Asn Thr Arg Leu Tyr Gly Leu Arg Ala Asn His

145 150 155 160  
 Lys Asp Ile Pro His Leu Ser Val Pro Ser Leu Glu Phe His Ser His  
 165 170 175  
 Thr Ser Ser Ala Lys Glu Leu Pro Lys Leu Ser Glu Ala Leu Pro Ser  
 180 185 190  
 Leu Leu Tyr Leu Ala Leu Glu Glu Ser Leu Tyr His Leu Asn Leu Pro  
 195 200 205  
 Gly Asp Ile Ile Lys Pro Leu Ser Gln Gln Ala His Lys His Phe Tyr  
 210 215 220  
 Ser Ser Tyr Pro Gln Phe Gln Asp Arg Leu Asn Asp Ile Asn Thr Pro  
 225 230 235 240  
 Gly Thr Pro Thr Glu Glu Ile Ile Gly Phe Ile Arg Gly Leu Phe Phe  
 245 250 255  
 His

&lt;210&gt;152

&lt;211&gt;83

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;152

Ser Lys Glu Gly Arg Ala Ser Glu Ser Phe Gly Asn Ser Leu Ala Glu  
 1 5 10 15  
 Leu Val Trp Leu Trp Asn Ser Lys Asp Gly Thr Glu Arg Trp Gly Met  
 20 25 30  
 Ser Leu Trp Leu Ala Leu Ser Pro Tyr Asn Arg Val Phe Arg Asn Arg  
 35 40 45  
 His Leu Arg Met Ser Thr Gly Ala Arg Ser Ile His Lys Phe Glu Gly  
 50 55 60  
 Val Ser Phe Cys Gly Trp Lys Phe Phe His Thr Lys Asp Gln Phe Val  
 65 70 75 80  
 Phe Val Pro

&lt;210&gt;153

&lt;211&gt;544

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;153

Met Ala Ala Lys Asn Ile Lys Tyr Asn Glu Glu Ala Arg Xaa Lys Ile  
 1 5 10 15  
 His Lys Gly Val Lys Thr Leu Ala Glu Ala Val Lys Val Thr Leu Gly  
 20 25 30  
 Pro Lys Gly Arg His Val Val Ile Asp Lys Ser Phe Gly Ser Pro Gln  
 35 40 45  
 Val Thr Lys Asp Gly Val Thr Val Ala Lys Glu Ile Glu Leu Glu Asp  
 50 55 60  
 Lys His Glu Asn Met Gly Ala Gln Met Val Lys Glu Val Ala Ser Lys  
 65 70 75 80  
 Thr Ala Asp Lys Ala Gly Asp Gly Thr Thr Thr Ala Thr Val Leu Ala  
 85 90 95  
 Glu Ala Ile Tyr Ser Glu Gly Leu Arg Asn Val Thr Ala Gly Ala Asn  
 100 105 110  
 Pro Met Asp Leu Lys Arg Gly Ile Asp Lys Ala Val Lys Val Val Val  
 115 120 125  
 Asp Glu Leu Lys Lys Ile Ser Lys Pro Val Gln His His Lys Glu Ile  
 130 135 140  
 Ala Gln Val Ala Thr Ile Ser Ala Asn Asn Asp Ser Glu Ile Gly Asn  
 145 150 155 160  
 Leu Ile Ala Glu Ala Met Glu Lys Val Gly Lys Asn Gly Ser Ile Thr  
 165 170 175  
 Val Glu Glu Ala Lys Gly Phe Glu Thr Val Leu Asp Val Val Glu Gly  
 180 185 190  
 Met Asn Phe Asn Arg Gly Tyr Leu Ser Ser Tyr Phe Ser Thr Asn Pro  
 195 200 205  
 Glu Thr Gln Glu Cys Val Leu Glu Asp Ala Leu Ile Leu Ile Tyr Asp

210 215 220  
 Lys Lys Ile Ser Gly Ile Lys Asp Phe Leu Pro Val Leu Gln Gln Val  
 225 230 235 240  
 Ala Glu Ser Gly Arg Pro Leu Leu Ile Ile Ala Glu Glu Ile Glu Gly  
 245 250 255  
 Glu Ala Leu Ala Thr Leu Val Val Asn Arg Leu Arg Ala Gly Phe Arg  
 260 265 270  
 Val Cys Ala Val Lys Ala Pro Gly Phe Gly Asp Arg Arg Lys Ala Met  
 275 280 285  
 Leu Glu Asp Ile Ala Ile Leu Thr Gly Gly Gln Leu Val Ser Glu Glu  
 290 295 300  
 Leu Gly Met Lys Leu Glu Asn Thr Thr Leu Ala Met Leu Gly Lys Ala  
 305 310 315 320  
 Lys Lys Val Ile Val Thr Lys Glu Asp Thr Thr Ile Val Glu Gly Leu  
 325 330 335  
 Gly Asn Lys Pro Asp Ile Gln Ala Arg Cys Asp Asn Ile Lys Lys Gln  
 340 345 350  
 Ile Glu Asp Ser Thr Ser Asp Tyr Asp Lys Glu Lys Leu Gln Glu Arg  
 355 360 365  
 Leu Ala Lys Leu Ser Gly Gly Val Ala Val Ile Arg Val Gly Ala Ala  
 370 375 380  
 Thr Glu Ile Glu Met Lys Glu Lys Lys Asp Arg Val Asp Asp Ala Gln  
 385 390 395 400  
 His Ala Thr Ile Ala Ala Val Glu Glu Gly Ile Leu Pro Gly Gly Gly  
 405 410 415  
 Thr Ala Leu Val Arg Cys Ile Pro Thr Leu Glu Ala Phe Leu Pro Met  
 420 425 430  
 Leu Ala Asn Glu Asp Glu Ala Ile Gly Thr Arg Ile Ile Leu Lys Ala  
 435 440 445  
 Leu Thr Ala Pro Leu Lys Gln Ile Ala Ser Asn Ala Gly Lys Glu Gly  
 450 455 460  
 Ala Ile Ile Cys Gln Gln Val Leu Ala Arg Ser Ala Asn Glu Gly Tyr  
 465 470 475 480  
 Asp Ala Leu Arg Asp Ala Tyr Thr Asp Met Ile Asp Ala Gly Ile Leu  
 485 490 495  
 Asp Pro Thr Lys Val Thr Arg Ser Ala Leu Glu Ser Ala Ala Ser Ile  
 500 505 510  
 Ala Gly Leu Leu Leu Thr Thr Glu Ala Leu Ile Ala Asp Ile Pro Glu  
 515 520 525  
 Glu Lys Ser Ser Ser Ala Pro Ala Met Pro Ser Ala Gly Met Asp Tyr  
 530 535 540

&lt;210&gt;154

&lt;211&gt;102

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;154

Met Ser Asp Gln Ala Thr Thr Leu Arg Ile Lys Pro Leu Gly Asp Arg  
 1 5 10 15  
 Ile Leu Val Lys Arg Glu Glu Glu Glu Ala Thr Ala Arg Gly Gly Ile  
 20 25 30  
 Ile Leu Pro Asp Thr Ala Lys Arg Lys Gln Asp Arg Ala Glu Val Leu  
 35 40 45  
 Val Leu Gly Thr Gly Lys Arg Thr Asp Asp Gly Thr Leu Leu Pro Phe  
 50 55 60  
 Glu Val Gln Val Gly Asp Ile Ile Leu Met Asp Lys Tyr Ala Gly Gln  
 65 70 75 80  
 Glu Ile Thr Ile Asp Asp Glu Glu Tyr Val Ile Leu Gln Ser Ser Glu  
 85 90 95  
 Ile Met Ala Val Leu Lys  
 100

&lt;210&gt;155

&lt;211&gt;617

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;155

Lys Gly Val Pro Ser Leu Met Thr Thr Glu Leu Lys Thr Glu Ala Leu  
 1 5 10 15  
 Pro Thr Arg Thr Gln Val Asp Pro Lys His Cys Trp Asp Thr Thr Leu  
 20 25 30  
 Met Tyr Ala Asn Arg Glu Glu Trp Lys Lys Asp Phe Asp Leu Cys Ser  
 35 40 45  
 Ser Gly Lys Asp Arg Ser Pro Ile Trp Pro Glu Phe Ser Pro Ser His  
 50 55 60  
 Tyr Gln Ile Asp Asn Pro Glu Ser Leu Leu Glu Leu Leu Ser Lys Lys  
 65 70 75 80  
 Phe Ser Val Glu Arg Lys Leu Asp Gln Leu Tyr Ile Tyr Ala His Leu  
 85 90 95  
 Ile His Asp Gln Asp Ile Thr Asn Pro Glu Gly Glu Ser Asp Tyr Gln  
 100 105 110  
 Ser Ile Val Tyr Leu Tyr Thr Leu Phe Ser Gln Glu Ile Ser Trp Ile  
 115 120 125  
 Gln Pro Ala Xaa Ile Ala Leu Ser Glu Glu Lys Val Ala Ala Leu Leu  
 130 135 140  
 Ser Ser Ser Val Leu Ala Pro Tyr Arg Phe Tyr Leu Glu Lys Ile Phe  
 145 150 155 160  
 Arg Leu Ser Pro His Thr Gly Thr Ala Asn Glu Glu Lys Ile Leu Ala  
 165 170 175  
 Ser Ser Phe Ala Ala Leu Asn Val Ser Asn Lys Ala Phe Ser Ser Leu  
 180 185 190  
 Ser Asp Ala Glu Ile Pro Phe Gly Ile Ala Lys Asp Ser Asn Gly Glu  
 195 200 205  
 Glu His Pro Leu Ser His Ala Leu Ala Ser Leu Tyr Met Gln Ser Pro  
 210 215 220  
 Asp Gln Glu Leu Arg Arg Thr Ala Tyr Leu Ala Gln Phe Gln Arg Tyr  
 225 230 235 240  
 Tyr Asp Tyr Arg Asn Thr Phe Ala Asn Leu Leu Asn Gly Lys Val Gln  
 245 250 255  
 Ala His Leu Phe Glu Ala Lys Ala Arg Asn Tyr Pro Ser Cys Leu Glu  
 260 265 270  
 Ala Ser Leu Phe Gln His Asn Ile Pro Thr Thr Val Tyr Ile Asn Leu  
 275 280 285  
 Ile Asn Glu Thr Lys Lys His Thr Ser Leu Ile Asn Arg Tyr Phe Asn  
 290 295 300  
 Leu Lys Lys Glu Ala Leu Asn Leu Lys Glu Phe His Phe Tyr Asp Val  
 305 310 315 320  
 Tyr Ala Pro Ile Ser Gln Thr Thr Ser Lys Asn Tyr Ser Tyr Glu Glu  
 325 330 335  
 Gly Val Asp Leu Val Cys Lys Ser Leu Leu Pro Leu Gly Thr His Tyr  
 340 345 350  
 Val Glu Ile Leu Arg Asn Gly Leu Leu Ser Asn Arg Trp Val Asp Arg  
 355 360 365  
 Tyr Glu Asn Lys His Lys Arg Ser Gly Ala Tyr Ser Ser Gly Cys Tyr  
 370 375 380  
 Asp Ser Ala Pro Tyr Ile Leu Leu Asn Tyr Thr Asn Thr Leu Tyr Asp  
 385 390 395 400  
 Val Ser Val Ile Ala His Glu Ala Gly His Ser Met His Ser Tyr Phe  
 405 410 415  
 Ser Arg Glu Ala Gln Pro Tyr His Asp Ala Gln Tyr Pro Leu Phe Leu  
 420 425 430  
 Ala Glu Ile Ala Ser Thr Phe Asn Glu Met Leu Leu Met Glu Ala Leu  
 435 440 445  
 Ser Lys Ser Asp Gln Ser Lys Glu Asp Lys Ile Val Ile Ile Thr Lys  
 450 455 460  
 Thr Leu Asp Thr Ile Phe Ala Thr Leu Phe Arg Gln Thr Phe Phe Ala  
 465 470 475 480  
 Ala Phe Glu Tyr Glu Ile His Ser Ala Ala Glu Gln Gly Thr Pro Leu  
 485 490 495  
 Thr Glu Glu Phe Leu Ser Ala Thr Tyr Gly Asn Leu Gln Lys Glu Phe



500 505 510  
 Tyr Gly Gly Val Val Thr Ser Asp Ser Leu Ser Ala Leu Glu Trp Ala  
 515 520 525  
 Arg Ile Pro His Phe Tyr Tyr Asn Phe Tyr Val Tyr Gln Tyr Ala Thr  
 530 535 540  
 Gly Ile Ile Ala Ala Leu Ser Phe Ala Glu Lys Xaa Leu Thr Gln Glu  
 545 550 555 560  
 Pro Gly Ala Leu Glu Leu Tyr Leu Lys Phe Leu Lys Ser Gly Arg Ser  
 565 570 575  
 Asp Phe Pro Leu Asn Ile Leu Lys Lys Ser Gly Leu Asp Met Thr Thr  
 580 585 590  
 Ser Ala Pro Leu Asp Lys Ala Phe Ala Phe Ile Thr Lys Lys Ile Asp  
 595 600 605  
 Leu Leu Ser Ser Leu Leu Ser Glu Asp  
 610 615

&lt;210&gt;156

&lt;211&gt;251

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;156

Met Asn Val Ala Asp Leu Leu Ser His Leu Glu Thr Leu Leu Ser Ser  
 1 5 10 15  
 Lys Ile Phe Gln Asp Tyr Gly Pro Asn Gly Leu Gln Val Gly Asp Pro  
 20 25 30  
 Gln Thr Pro Val Lys Lys Ile Ala Val Ala Val Thr Ala Asp Leu Glu  
 35 40 45  
 Thr Ile Lys Gln Ala Val Ala Glu Ala Asn Val Leu Ile Val His  
 50 55 60  
 His Gly Ile Phe Trp Lys Gly Met Pro Tyr Pro Ile Thr Gly Met Ile  
 65 70 75 80  
 His Lys Arg Ile Gln Leu Leu Ile Glu His Asn Ile Gln Leu Ile Ala  
 85 90 95  
 Tyr His Leu Pro Leu Asp Ala His Pro Thr Leu Gly Asn Asn Trp Arg  
 100 105 110  
 Val Ala Leu Asp Leu Asn Trp His Asp Leu Lys Pro Phe Gly Ser Ser  
 115 120 125  
 Leu Pro Tyr Leu Gly Val Gln Gly Ser Phe Ser Pro Ile Asp Ile Asp  
 130 135 140  
 Ser Phe Ile Asp Leu Leu Ser Arg Tyr Tyr Gln Ala Pro Leu Lys Gly  
 145 150 155 160  
 Ser Ala Leu Gly Gly Pro Ser Arg Val Ser Ser Ala Ala Leu Ile Ser  
 165 170 175  
 Gly Gly Ala Tyr Arg Glu Leu Ser Ser Ala Ala Thr Ser Gln Val Asp  
 180 185 190  
 Cys Phe Ile Thr Gly Asn Phe Asp Glu Pro Ala Trp Ser Thr Ala Leu  
 195 200 205  
 Glu Ser Asn Ile Asn Phe Leu Ala Phe Gly His Thr Ala Thr Glu Lys  
 210 215 220  
 Val Gly Pro Lys Ser Leu Ala Glu His Leu Lys Ser Glu Phe Pro Ile  
 225 230 235 240  
 Ser Thr Thr Phe Ile Asp Ala Ala Asn Pro Phe  
 245 250

&lt;210&gt;157

&lt;211&gt;449

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;157

Met Trp Lys Leu Thr Lys Arg Asn Ser Met Leu Asn Cys Ser Asn Gln  
 1 5 10 15  
 Lys His Thr Val Thr Phe Glu Glu Ala Cys Gln Val Phe Pro Gly Gly  
 20 25 30  
 Val Asn Ser Pro Val Arg Ala Cys Arg Ser Val Gly Val Thr Pro Pro  
 35 40 45  
 Ile Val Ser Ser Ala Gln Gly Asp Ile Phe Leu Asp Thr His Gly Arg

50 55 60  
 Glu Phe Ile Asp Phe Cys Gly Gly Trp Gly Ala Leu Ile His Gly His  
 65 70 75 80  
 Ser His Pro Lys Ile Val Lys Ala Ile Gln Lys Thr Ala Leu Lys Gly  
 85 90 95  
 Thr Ser Tyr Gly Leu Thr Ser Glu Glu Ile Leu Phe Ala Thr Met  
 100 105 110  
 Leu Leu Ser Ser Leu Lys Leu Lys Glu His Lys Ile Arg Phe Val Ser  
 115 120 125  
 Ser Gly Thr Glu Ala Thr Met Thr Ala Val Arg Leu Ala Arg Gly Ile  
 130 135 140  
 Thr Asn Arg Ser Ile Ile Ile Lys Phe Ile Gly Gly Tyr His Gly His  
 145 150 155 160  
 Ala Asp Thr Leu Leu Gly Gly Ile Ser Thr Thr Glu Glu Thr Ile Asp  
 165 170 175  
 Asn Leu Thr Ser Leu Ile His Thr Pro Ser Pro His Ser Leu Leu Ile  
 180 185 190  
 Ser Leu Pro Tyr Asn Asn Ser Gln Ile Leu His His Val Met Glu Ala  
 195 200 205  
 Leu Gly Pro Gln Val Ala Gly Ile Ile Phe Glu Pro Ile Cys Ala Asn  
 210 215 220  
 Met Gly Ile Val Leu Pro Lys Ala Glu Phe Leu Asp Asp Ile Ile Glu  
 225 230 235 240  
 Leu Cys Lys Arg Phe Gly Ser Leu Ser Ile Met Asp Glu Val Val Thr  
 245 250 255  
 Gly Phe Arg Val Ala Phe Gln Gly Ala Gln Asp Ile Phe Asn Leu Ser  
 260 265 270  
 Pro Asp Ile Thr Ile Tyr Gly Lys Ile Leu Gly Gly Gly Leu Pro Ala  
 275 280 285  
 Ala Ala Leu Val Gly His Arg Ser Ile Leu Asp His Leu Met Pro Glu  
 290 295 300  
 Gly Thr Ile Phe Gln Ala Gly Thr Met Ser Gly Asn Phe Leu Ala Met  
 305 310 315 320  
 Ala Thr Gly His Ala Ala Ile Gln Leu Cys Gln Ser Glu Gly Phe Tyr  
 325 330 335  
 Asp His Leu Ser Gln Leu Glu Ala Leu Phe Tyr Ser Pro Ile Glu Glu  
 340 345 350  
 Glu Ile Arg Ser Gln Gly Phe Pro Val Ser Leu Val His Gln Gly Thr  
 355 360 365  
 Met Phe Ser Leu Phe Phe Thr Glu Ser Ala Pro Thr Asn Phe Asp Glu  
 370 375 380  
 Ala Lys Asn Ser Asp Val Glu Lys Phe Gln Thr Phe Tyr Ser Glu Val  
 385 390 395 400  
 Phe Asp Asn Gly Val Tyr Leu Ser Pro Ser Pro Leu Glu Ala Asn Phe  
 405 410 415  
 Ile Ser Ser Ala His Thr Glu Glu Asn Leu Thr Tyr Ala Gln Asn Ile  
 420 425 430  
 Ile Ile Asp Ser Leu Ile Lys Ile Phe Asp Ser Ser Ala Gln Arg Phe  
 435 440 445  
 Xaa

&lt;210&gt;158

&lt;211&gt;174

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;158

Ser Leu Leu Leu Asn Ile Asn Gln Gly Val Phe Ala Arg Ser Val Ile  
 1 5 10 15  
 Leu Leu Cys Glu His Ser Leu Asn Gly Ser Phe Gly Leu Ile Leu Asn  
 20 25 30  
 Lys Thr Leu Gly Phe Glu Ile Ser Asp Asp Ile Phe Thr Phe Glu Lys  
 35 40 45  
 Val Ser Asn His Asn Ile Arg Phe Cys Xaa Gly Gly Pro Leu Gln Ala  
 50 55 60

Asn Gln Met Met Leu Leu His Ser Cys Ser Glu Ile Pro Glu Gln Thr  
 65 70 75 80  
 Leu Glu Ile Cys Pro Ser Val Tyr Leu Gly Asp Leu Pro Phe Leu  
 85 90 95  
 Gln Glu Ile Ala Ser Ser Glu Ser Gly Pro Glu Ile Asn Leu Cys Phe  
 100 105 110  
 Gly Tyr Ser Gly Trp Gln Ala Gly Gln Leu Glu Lys Glu Phe Leu Ser  
 115 120 125  
 Asn Asp Trp Phe Leu Ala Pro Gly Asn Lys Asp Tyr Val Phe Tyr Ser  
 130 135 140  
 Glu Pro Glu Asp Leu Trp Ala Leu Val Leu Lys Asp Leu Gly Gly Lys  
 145 150 155 160  
 Tyr Ala Ser Leu Ser Thr Val Pro Asp Asn Leu Leu Leu Asn  
 165 170

&lt;210&gt;159

&lt;211&gt;124

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;159

Met Ser Leu Glu Lys Glu Leu Leu Glu Glu Thr Pro Leu Val Leu Leu  
 1 5 10 15  
 Asn Phe Tyr Lys Leu Val Ser Phe Cys Asn Tyr Ala Gly Met Ile Leu  
 20 25 30  
 Gly Thr Glu Glu Lys Lys Phe Ala Ile Tyr Gly His Val Ser Met Gly  
 35 40 45  
 Gln Ala Phe Gln Gly Ala Asp Thr Glu Gly His Ser Pro Gln Arg Pro  
 50 55 60  
 Phe Ala His Asp Leu Leu Asn Phe Val Phe Ser Gly Phe Asp Ile Gln  
 65 70 75 80  
 Val Leu Arg Val Val Ile Asn Asp Tyr Lys Asp Asn Val Phe Tyr Thr  
 85 90 95  
 Arg Leu Phe Leu Glu Gln Lys Asp Arg Glu Phe Leu Tyr Val Val Asp  
 100 105 110  
 Val Asp Ala Arg Pro Ser Asp Arg Ser Leu Ser Pro  
 115 120

&lt;210&gt;160

&lt;211&gt;140

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;160

Ser Arg Pro Ser Ile Ala Asp Asp Gln Arg Trp Trp Arg Thr Phe Phe  
 1 5 10 15  
 Arg Glu Lys Ile Leu Leu Arg Ala Ala Lys Arg Ser Ile Ile Leu Val  
 20 25 30  
 Asp Glu Ser Lys Leu Val Pro Val Leu Gly Lys Phe Arg Val Pro Leu  
 35 40 45  
 Glu Ile Ser Arg Phe Gly Arg Ser Ala Ile Ile Glu Glu Ile Arg His  
 50 55 60  
 Leu Gly Tyr Glu Gly Glu Trp Arg Leu Gln Asp Thr Gly Asp Leu Phe  
 65 70 75 80  
 Ile Thr Asp Ser Ser Asn Tyr Ile Tyr Asp Ile Phe Ser Pro Asn Ser  
 85 90 95  
 Tyr Pro Asn Pro Glu Lys Asp Leu Leu Lys Leu Ile Gln Ile His Gly  
 100 105 110  
 Val Ile Glu Val Gly Phe Val Ile Glu Lys Val Glu Val Trp Ser Ser  
 115 120 125  
 Asn Ser Gln Gly Leu Ile Ser Lys Lys Tyr Ser Val  
 130 135 140

&lt;210&gt;161

&lt;211&gt;112

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;161

Val Glu Lys Asp Leu His Leu His Glu Lys Lys Cys Leu Ala His Glu

1 5 10 15  
 Ala Ala Thr Gln Val Thr Ser Gly Met Ile Leu Gly Leu Gly Ser Gly  
 20 25 30  
 Ser Thr Ala Lys Glu Phe Ile Phe Ala Leu Ala His Arg Ile Gln Thr  
 35 40 45  
 Glu Ser Leu Ala Val His Ala Ile Ala Ser Ser Gln Asn Ser Tyr Ala  
 50 55 60  
 Leu Ala Lys Gln Leu Ala Ile Pro Leu Leu Asn Pro Glu Lys Phe Ser  
 65 70 75 80  
 Ser Leu Asp Leu Thr Val Asp Gly Ala Asp Glu Val Asp Pro Gln Leu  
 85 90 95  
 Arg Met Ile Lys Gly Gly Gly Gly Pro Phe Ser Glu Lys Arg Phe Phe  
 100 105 110  
 <210>162  
 <211>378  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>162  
 Arg Arg Thr Ile Met Asn Thr Ser Leu Lys Arg Pro Leu Lys Ser His  
 1 5 10 15  
 Phe Asp Val Val Gly Ser Phe Leu Arg Pro Glu His Leu Lys Lys Thr  
 20 25 30  
 Arg Glu Ser Leu Lys Glu Gly Ser Ile Ser Leu Asp Gln Leu Met Gln  
 35 40 45  
 Ile Glu Asp Ile Ala Ile Gln Asp Leu Ile Lys Lys Gln Lys Ala Ala  
 50 55 60  
 Gly Leu Ser Phe Ile Thr Asp Gly Glu Phe Arg Arg Ala Thr Trp His  
 65 70 75 80  
 Tyr Asp Phe Met Trp Gly Phe His Gly Val Gly His His Arg Ala Thr  
 85 90 95  
 Glu Gly Val Phe Phe Asp Gly Glu Arg Ala Met Ile Asp Asp Thr Tyr  
 100 105 110  
 Leu Thr Asp Lys Ile Ser Val Ser His His Pro Phe Val Asp His Phe  
 115 120 125  
 Lys Phe Val Lys Ala Leu Glu Asp Glu Phe Thr Thr Ala Lys Gln Thr  
 130 135 140  
 Leu Pro Ala Pro Ala Gln Phe Leu Lys Gln Met Ile Phe Pro Asn Asn  
 145 150 155 160  
 Ile Glu Val Thr Arg Lys Phe Tyr Pro Thr Asn Gln Glu Leu Ile Glu  
 165 170 175  
 Asp Ile Val Ala Gly Tyr Arg Lys Val Ile Arg Asp Leu Tyr Asp Ala  
 180 185 190  
 Gly Cys Arg Tyr Leu Gln Leu Asp Asp Cys Thr Arg Gly Gly Leu Val  
 195 200 205  
 Asp Pro Arg Val Cys Ser Trp Tyr Gly Ile Asp Glu Lys Gly Leu Gln  
 210 215 220  
 Asp Leu Ile Gln Gln Tyr Leu Leu Ile Asn Asn Leu Val Ile Ala Asp  
 225 230 235 240  
 Arg Pro Asp Asp Leu Val Val Asn Leu His Val Cys Arg Gly Asn Tyr  
 245 250 255  
 His Ser Lys Phe Phe Ala Ser Gly Ser Tyr Asp Phe Ile Ala Lys Pro  
 260 265 270  
 Leu Phe Glu Gln Thr Asn Val Asp Gly Tyr Tyr Leu Glu Phe Asp His  
 275 280 285  
 Glu Arg Ser Gly Asp Phe Ser Pro Leu Thr Phe Ile Ser Gly Glu Lys  
 290 295 300  
 Thr Val Cys Leu Gly Leu Val Thr Ser Lys Thr Pro Thr Leu Glu Asn  
 305 310 315 320  
 Lys Asp Glu Val Ile Ala Arg Ile His Gln Ala Ala Asp Tyr Leu Pro  
 325 330 335  
 Leu Glu Arg Leu Ser Leu Ser Pro Gln Cys Gly Phe Ala Ser Cys Glu  
 340 345 350  
 Ile Gly Asn Lys Leu Thr Glu Glu Glu Gln Trp Ala Lys Val Ala Leu  
 355 360 365

Val Lys Glu Ile Ser Glu Glu Val Trp Lys  
 370 375  
 <210>163  
 <211>872  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>163  
 Val Leu Gly Val Asn Phe Met Glu Lys Phe Ser Asp Ala Val Ser Glu  
 1 5 10 15  
 Ala Leu Glu Lys Ala Phe Glu Leu Ala Lys Ser Ser Lys His Thr Tyr  
 20 25 30  
 Val Thr Glu Asn His Leu Leu Leu Ala Leu Leu Glu Asn Thr Glu Ser  
 35 40 45  
 Leu Phe Tyr Leu Val Ile Lys Asp Ile His Gly Asn Pro Gly Leu Leu  
 50 55 60  
 Asn Thr Ala Val Lys Asp Ala Leu Ser Arg Glu Pro Thr Val Val Glu  
 65 70 75 80  
 Gly Glu Val Asp Pro Lys Pro Ser Pro Gly Leu Gln Thr Leu Leu Arg  
 85 90 95  
 Asp Ala Lys Gln Glu Ala Lys Thr Leu Gly Asp Glu Tyr Ile Ser Gly  
 100 105 110  
 Asp His Leu Leu Leu Ala Phe Trp Ser Ser Asn Lys Glu Pro Phe Asn  
 115 120 125  
 Ser Trp Lys Gln Thr Thr Lys Val Ser Phe Lys Asp Leu Lys Asn Leu  
 130 135 140  
 Ile Thr Lys Ile Arg Arg Gly Asn Arg Met Asp Ser Pro Ser Ala Glu  
 145 150 155 160  
 Ser Asn Phe Gln Gly Leu Glu Lys Tyr Cys Lys Asn Leu Thr Ala Leu  
 165 170 175  
 Ala Arg Glu Gly Lys Leu Asp Pro Val Ile Gly Arg Asp Glu Glu Ile  
 180 185 190  
 Arg Arg Thr Ile Gln Val Leu Ser Arg Arg Thr Lys Asn Asn Pro Met  
 195 200 205  
 Leu Ile Gly Glu Pro Gly Val Gly Lys Thr Ala Ile Ala Glu Gly Leu  
 210 215 220  
 Ala Leu Arg Leu Ile Gln Gly Asp Val Pro Glu Ser Leu Lys Gly Lys  
 225 230 235 240  
 Gln Leu Tyr Val Leu Asp Met Gly Ala Leu Ile Ala Gly Ala Lys Tyr  
 245 250 255  
 Arg Gly Glu Phe Glu Glu Arg Leu Lys Ser Val Leu Lys Asp Val Glu  
 260 265 270  
 Ser Gly Asp Gly Glu His Ile Ile Phe Ile Asp Glu Val His Thr Leu  
 275 280 285  
 Val Gly Ala Gly Ala Thr Asp Gly Ala Met Asp Ala Ala Asn Leu Leu  
 290 295 300  
 Lys Pro Ala Leu Ala Arg Gly Thr Leu His Cys Ile Gly Ala Thr Thr  
 305 310 315 320  
 Leu Asn Glu Tyr Gln Lys Tyr Ile Glu Lys Asp Ala Ala Leu Glu Arg  
 325 330 335  
 Arg Phe Gln Pro Ile Phe Val Thr Glu Pro Ser Leu Glu Asp Ala Val  
 340 345 350  
 Phe Ile Leu Arg Gly Leu Arg Glu Lys Tyr Glu Ile Phe His Gly Val  
 355 360 365  
 Arg Ile Thr Glu Gly Ala Leu Asn Ala Ala Val Leu Leu Ser Tyr Arg  
 370 375 380  
 Tyr Ile Pro Asp Arg Phe Leu Pro Asp Lys Ala Ile Asp Leu Ile Asp  
 385 390 395 400  
 Glu Ala Ala Ser Leu Ile Arg Met Gln Ile Gly Ser Leu Pro Leu Pro  
 405 410 415  
 Ile Asp Glu Lys Glu Arg Glu Leu Ala Leu Ile Val Lys Gln Glu  
 420 425 430  
 Ala Ile Lys Arg Glu Gln Ser Pro Ser Tyr Gln Glu Glu Ala Asp Ala  
 435 440 445  
 Met Gln Lys Ser Ile Asp Ala Leu Arg Glu Glu Leu Ala Ser Leu Arg

450 455 460  
 Leu Gly Trp Asp Glu Glu Lys Lys Leu Ile Ser Gly Leu Lys Glu Lys  
 465 470 475 480  
 Lys Asn Ser Leu Glu Ser Met Lys Phe Ser Glu Glu Glu Ala Glu Arg  
 485 490 495  
 Val Ala Asp Tyr Asn Arg Val Ala Glu Leu Arg Tyr Ser Leu Ile Pro  
 500 505 510  
 Gln Leu Glu Glu Glu Ile Lys Gln Asp Glu Ala Ser Leu Asn Gln Arg  
 515 520 525  
 Asp Asn Arg Leu Leu Gln Glu Glu Val Asp Glu Arg Leu Ile Ala Gln  
 530 535 540  
 Val Val Ala Asn Trp Thr Gly Ile Pro Val Gln Lys Met Leu Glu Gly  
 545 550 555 560  
 Glu Ala Glu Lys Leu Leu Ile Leu Glu Glu Ser Leu Glu Glu Arg Val  
 565 570 575  
 Val Gly Gln Pro Phe Ala Val Ser Ala Val Ser Asp Ser Ile Arg Ala  
 580 585 590  
 Ala Arg Val Gly Leu Asn Asp Pro Gln Arg Pro Leu Gly Val Phe Leu  
 595 600 605  
 Phe Leu Gly Pro Thr Gly Val Gly Lys Thr Glu Leu Ala Lys Ala Leu  
 610 615 620  
 Ala Asp Leu Leu Phe Asn Lys Glu Glu Ala Met Val Arg Phe Asp Met  
 625 630 635 640  
 Ser Glu Tyr Met Glu Lys His Ser Ile Ser Lys Leu Ile Gly Ser Ser  
 645 650 655  
 Pro Gly Tyr Val Gly Tyr Glu Glu Gly Gly Ser Leu Ser Glu Ala Leu  
 660 665 670  
 Arg Arg Arg Pro Tyr Ser Val Val Leu Phe Asp Glu Ile Glu Lys Ala  
 675 680 685  
 Asp Lys Glu Val Leu Asn Ile Leu Leu Gln Val Phe Asp Asp Gly Ile  
 690 695 700  
 Leu Thr Asp Gly Lys Lys Arg Lys Val Asn Cys Lys Asn Ala Leu Phe  
 705 710 715 720  
 Ile Met Thr Ser Asn Ile Gly Ser Pro Glu Leu Ala Asp Tyr Cys Ser  
 725 730 735  
 Lys Lys Gly Ser Glu Leu Thr Lys Glu Ala Ile Leu Ser Val Val Ser  
 740 745 750  
 Pro Val Leu Lys Arg Tyr Leu Ser Pro Glu Phe Met Asn Arg Ile Asp  
 755 760 765  
 Glu Ile Leu Pro Phe Val Pro Leu Thr Lys Glu Asp Ile Val Lys Ile  
 770 775 780  
 Val Gly Ile Gln Met Arg Arg Ile Ala Gln Arg Leu Lys Ala Arg Arg  
 785 790 795 800  
 Ile Asn Leu Ser Trp Asp Asp Ser Val Ile Leu Phe Leu Ser Glu Gln  
 805 810 815  
 Gly Tyr Asp Ser Ala Phe Gly Ala Arg Pro Leu Lys Arg Leu Ile Gln  
 820 825 830  
 Gln Lys Val Val Ile Leu Leu Ser Lys Ala Leu Leu Lys Gly Asp Ile  
 835 840 845  
 Lys Pro Asp Thr Ser Ile Glu Leu Thr Met Ala Lys Glu Val Leu Val  
 850 855 860  
 Phe Lys Lys Val Glu Thr Pro Ser  
 865 870  
 <210>164  
 <211>182  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>164  
 Asn Cys Ala Ala Ser Phe Ile Trp Leu Asn Lys Ser Ser His Arg Asn  
 1 5 10 15  
 Leu Arg Ser Pro Met Phe Lys Ser Phe Ile Val Arg Tyr Met Phe Val  
 20 25 30  
 Gly Gly Leu Val Ser Phe Leu Leu Pro Ile Pro Asp Leu Glu Cys Ala  
 35 40 45

Asn Asn Val Thr Lys Thr Tyr Asp Lys Lys Ala Ser Val Ile Ser Arg  
 50 55 60  
 Asp Leu Lys Leu Gln Glu Asp Cys Gln Lys Phe Trp Asn Leu Asp Pro  
 65 70 75 80  
 Tyr Lys Leu Glu Ser Leu Cys Ala Tyr Gln Val Leu Tyr His Asp Asp  
 85 90 95  
 Tyr Ser Ser Lys Arg Ile Arg Glu Leu Phe Pro Gln Ile Gln Lys Asp  
 100 105 110  
 Glu Val Pro Ile Phe Ala Thr Met Ile Leu Thr Leu Gly Lys Val Asp  
 115 120 125  
 Arg Gly Phe Ser Pro Glu Glu Ile Ser Leu Ile Gln Lys Leu Ser Tyr  
 130 135 140  
 Pro Gly Leu Ser Leu Ala Ser Leu Arg Gly Ser Thr Glu Ile Arg Pro  
 145 150 155 160  
 Glu Tyr Arg Phe Gly Ser Cys Phe Ser Ser Val Gly Val Phe Trp Arg  
 165 170 175  
 Phe Arg Glu Glu Pro Ser  
 180

&lt;210&gt;165

&lt;211&gt;399

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;165

Glu Gly Leu Gln Lys Leu Asp Pro Asn Thr Asp Leu Ala Arg Ala Leu  
 1 5 10 15  
 Val Val Ser Glu Phe Ser Gly Asp Leu Gly Lys Asn Arg Ala Asp Tyr  
 20 25 30  
 Tyr Ser Asn Cys Leu Asp Ile Leu Ala Leu Arg Ile His Ala Glu Arg  
 35 40 45  
 Gln Arg Tyr Leu Asp Gln Ser Pro Cys Val Pro Gly Thr Ser Glu Phe  
 50 55 60  
 His Lys Ala Thr Ile Glu Ala Ile Asn Thr Ile Leu Phe Tyr Glu Glu  
 65 70 75 80  
 Ala Val Arg Tyr Pro Ser Lys Lys Glu Met Phe Ser Asp Glu Phe Ser  
 85 90 95  
 Phe Leu Ser Ser Val Thr Asp Arg Lys Phe Gly Val Cys Leu Gly Val  
 100 105 110  
 Ser Ser Leu Tyr Phe Ser Leu Ser Gln Arg Leu Asp Leu Pro Leu Glu  
 115 120 125  
 Ala Val Thr Pro Pro Gly His Ile Tyr Leu Arg Tyr Gln Gly Gly Glu  
 130 135 140  
 Val Asn Ile Glu Thr Thr Ala Gly Gly Arg His Leu Pro Thr Ala Ser  
 145 150 155 160  
 Tyr Cys Asp Cys Leu Asp Leu Glu Asp Leu Gln Val Arg Thr Pro Glu  
 165 170 175  
 Glu Met Ile Gly Leu Thr Phe Met Asn Gln Gly Ser Phe Ala Leu Gln  
 180 185 190  
 Lys Lys Lys Tyr Lys Glu Ala Glu Glu Ala Tyr Lys Lys Ala Gln Glu  
 195 200 205  
 Tyr Leu Gly Asp Glu Glu Leu Gln Glu Leu Leu Gly Phe Val Gln Ile  
 210 215 220  
 Leu Gly Gly Lys Lys Lys Glu Gly Lys Ser Leu Ile Gly Lys Ser Pro  
 225 230 235 240  
 Arg Ala Ser Gln Lys Gly Ser Val Ala Tyr Asp Tyr Leu Lys Gly Arg  
 245 250 255  
 Ile Asn Ile Pro Thr Leu Ala Leu Leu Phe Ser Tyr Pro Gly Ser Asn  
 260 265 270  
 Tyr Glu Glu Ile Ala Ser Tyr Glu Glu Glu Leu Lys Lys Ala Met Lys  
 275 280 285  
 Ser Ser Met Pro Cys Cys Glu Gly Gln Arg Arg Leu Ala Ser Val Ala  
 290 295 300  
 Phe His Leu Gly Lys Thr Ala Glu Ala Val Ala Leu Leu Glu Lys Cys  
 305 310 315 320  
 Val Glu Asp Ile Pro Asn Asp Leu Ser Leu His Leu Arg Leu Cys Lys

325 330 335  
 Ile Leu Cys Asp Arg His Glu Tyr Thr Lys Ala Leu Lys Tyr Phe Ile  
 340 345 350  
 Ile Ala Glu Arg Leu Met Glu Asp Gln Gly Phe Leu Lys Lys Asp Asn  
 355 360 365  
 Arg Ser Phe Ala Leu Phe Tyr Glu Val Lys Lys Ile Ile Ser Lys Val  
 370 375 380  
 Ala Pro Gln Lys Ala Asn Thr Leu Leu Leu Met Glu Ser Glu Arg  
 385 390 395  
 <210>166  
 <211>167  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>166  
 Ile Ile Val Gly Ile Ser Met Ser Ser Ser Glu Val Val Phe Gln Thr  
 1 5 10 15  
 Val His Gly Leu Gly Phe Gly Gly Leu Ser Ser Lys Ser Val Val Pro  
 20 25 30  
 Phe Lys Lys Ser Leu Ser Asp Ala Pro Arg Val Val Cys Ser Ile Leu  
 35 40 45  
 Val Leu Thr Leu Gly Leu Gly Ala Leu Val Cys Gly Ile Ala Ile Thr  
 50 55 60  
 Cys Trp Cys Val Pro Gly Val Ile Leu Met Gly Gly Ile Cys Ala Ile  
 65 70 75 80  
 Val Leu Gly Ala Ile Ser Leu Ala Leu Ser Leu Phe Trp Leu Trp Gly  
 85 90 95  
 Leu Phe Ser Asn Cys Cys Gly Ser Lys Arg Val Leu Pro Gly Glu Gly  
 100 105 110  
 Leu Leu Arg Asp Lys Leu Leu Asp Gly Gly Phe Ser Arg Ala Ala Pro  
 115 120 125  
 Ser Gly Met Gly Leu Pro Gly Asp Gly Ser Pro Arg Ala Ser Thr Pro  
 130 135 140  
 Ser Cys Leu Glu Glu Leu Gln Ala Glu Ile Gln Ala Val Thr Gln Ala  
 145 150 155 160  
 Ile Asp Gln Met Ser Asp Asp  
 165  
 <210>167  
 <211>145  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>167  
 Leu Pro Ala Pro Glu Leu Arg Ser Ser Trp Val Lys Gly Asp Pro Pro  
 1 5 10 15  
 Pro Arg Pro Ala Ser Pro Ala Thr Pro Pro Ser Arg Gly Gly Val Ala  
 20 25 30  
 Glu Phe Leu Ser Leu Gly Ser Pro Leu Phe Pro Gly Leu Gly Ile Ser  
 35 40 45  
 Ala Leu Gly Ile Leu Ser Ser Leu Lys Val Ile Ser Ile Ala Gln Ala  
 50 55 60  
 Asn Asn Ala Thr Pro Ser Ser Ile Val Ile Ala Pro Ala Ala Ile Pro  
 65 70 75 80  
 Lys Gly Gln Gln Pro Ala Arg Thr Thr Arg Pro Ser Pro Ser Lys Glu  
 85 90 95  
 Ile Ala Thr Thr Ala Met Ile Ala Ala Ile Thr Asp Leu Ala Ile Leu  
 100 105 110  
 Val Ala Leu Ser Ser Val Leu Asn Ala Gly Ile Ala Ser Leu Glu Gln  
 115 120 125  
 Phe Thr His Pro Thr Asp Val Ala Ala Asp Val Thr Ala Ser Phe Ile  
 130 135 140  
 Asp  
 145  
 <210>168  
 <211>538  
 <212>PRT



&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;168

Gly Lys Trp Trp Arg Val Ser Ser Met Glu Ser Glu Lys Asp Ile Gly  
 1 5 10 15  
 Ala Lys Phe Leu Gly Asp Tyr Arg Ile Leu Tyr Arg Lys Gly Gln Ser  
 20 25 30  
 Leu Trp Ser Glu Asp Leu Leu Ala Glu His Arg Phe Ile Lys Lys Arg  
 35 40 45  
 Tyr Leu Ile Arg Leu Leu Leu Pro Asp Leu Gly Ser Ser Gln Pro Phe  
 50 55 60  
 Met Glu Ala Phe His Asp Val Val Val Lys Leu Ala Lys Leu Asn His  
 65 70 75 80  
 Pro Gly Ile Leu Ser Ile Glu Asn Val Ser Glu Ser Glu Gly Arg Cys  
 85 90 95  
 Phe Leu Val Thr Gln Glu Gln Asp Ile Pro Ile Leu Ser Leu Thr Gln  
 100 105 110  
 Tyr Leu Lys Ser Ile Pro Arg Lys Leu Thr Glu Leu Glu Ile Val Asp  
 115 120 125  
 Ile Val Ser Gln Leu Ala Ser Leu Leu Asp Tyr Val His Ser Glu Gly  
 130 135 140  
 Leu Ala Gln Glu Glu Trp Asn Leu Asp Ser Val Tyr Ile His Ile Leu  
 145 150 155 160  
 Asn Gly Val Pro Lys Val Ile Leu Pro Asp Leu Gly Phe Ala Ser Leu  
 165 170 175  
 Ile Lys Glu Arg Ile Leu Asp Gly Phe Ile Ser Asp Glu Glu Asn Arg  
 180 185 190  
 Glu Ser Lys Ile Lys Glu Arg Val Leu Leu His Thr Ser Glu Gly Lys  
 195 200 205  
 Gln Gly Arg Glu Asp Thr Tyr Ala Phe Gly Ala Ile Thr Tyr Tyr Leu  
 210 215 220  
 Leu Phe Gly Phe Leu Pro Gln Gly Ile Phe Pro Met Pro Ser Lys Val  
 225 230 235 240  
 Phe Ser Asp Phe Ile Tyr Asp Trp Asp Phe Leu Ile Ser Ser Cys Leu  
 245 250 255  
 Ser Cys Phe Met Glu Glu Arg Ala Lys Glu Leu Phe Pro Leu Ile Arg  
 260 265 270  
 Lys Lys Thr Leu Gly Glu Glu Leu Gln Asn Val Val Thr Asn Cys Ile  
 275 280 285  
 Glu Ser Ser Leu Arg Glu Val Pro Asp Pro Leu Glu Ser Ser Gln Asn  
 290 295 300  
 Leu Pro Gln Ala Val Leu Lys Val Gly Glu Thr Lys Val Ser His Gln  
 305 310 315 320  
 Gln Lys Glu Ser Ala Glu His Leu Glu Phe Val Leu Val Glu Ala Cys  
 325 330 335  
 Ser Ile Asp Glu Ala Met Asp Thr Ala Ile Glu Ser Glu Ser Ser Ser  
 340 345 350  
 Gly Val Glu Glu Glu Gly Tyr Ser Leu Ala Leu Gln Ser Leu Leu Val  
 355 360 365  
 Arg Glu Pro Val Val Ser Arg Tyr Val Glu Ala Glu Lys Glu Glu Pro  
 370 375 380  
 Lys Pro Gln Pro Ile Leu Thr Glu Met Val Leu Ile Glu Gly Gly Glu  
 385 390 395 400  
 Phe Ser Arg Gly Ser Val Glu Gly Gln Arg Asp Glu Leu Pro Val His  
 405 410 415  
 Lys Val Ile Leu His Ser Phe Phe Leu Asp Val His Pro Val Thr Asn  
 420 425 430  
 Glu Gln Phe Asn Arg Tyr Leu Glu Cys Cys Gly Ser Glu Gln Asp Lys  
 435 440 445  
 Tyr Tyr Asn Glu Leu Ile Arg Leu Arg Asp Ser Arg Ile Gln Arg Arg  
 450 455 460  
 Ser Gly Arg Leu Val Ile Glu Pro Gly Tyr Ala Lys His Pro Val Val  
 465 470 475 480  
 Gly Val Thr Trp Tyr Gly Ala Ser Gly Tyr Ala Glu Trp Ile Gly Lys  
 485 490 495

Arg Leu Pro Thr Glu Ala Glu Trp Glu Ile Ala Ala Ser Gly Gly Val  
                     500                    505                    510  
 Ala Cys Tyr Ala Ile Pro Val Gly Arg Lys Ser Lys Lys Ala Gly Gln  
                     515                    520                    525  
 Ile Phe Ser Leu Arg Ile Arg Gln Gln Ser  
                     530                    535  
 <210>169  
 <211>662  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>169  
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   1                    5                    10                    15  
 Leu Glu Asp His Asp Tyr Ser Tyr Tyr Val Leu His Arg Pro Arg Ile  
                     20                    25                    30  
 Ser Asp Tyr Glu Tyr Asp Met Lys Leu Arg Lys Leu Leu Glu Ile Glu  
                     35                    40                    45  
 Arg Ser His Pro Glu Trp Lys Val Leu Trp Ser Pro Ser Thr Arg Leu  
                     50                    55                    60  
 Gly Asp Arg Pro Ser Gly Thr Phe Ser Val Val Ser His Lys Glu Pro  
                     65                    70                    75                    80  
 Met Leu Ser Ile Ala Asn Ser Tyr Ser Lys Glu Glu Leu Ser Glu Phe  
                     85                    90                    95  
 Phe Ser Arg Val Glu Lys Ser Leu Gly Thr Ser Pro Arg Tyr Thr Val  
                     100                    105                    110  
 Glu Leu Lys Ile Asp Gly Ile Ala Val Ala Ile Arg Tyr Glu Asp Arg  
                     115                    120                    125  
 Val Leu Val Gln Ala Leu Ser Arg Gly Asn Gly Lys Gln Gly Glu Asp  
                     130                    135                    140  
 Ile Thr Ser Asn Ile Arg Thr Ile Arg Ser Leu Pro Leu Arg Leu Pro  
  145                    150                    155                    160  
 Glu Asp Ala Pro Glu Phe Ile Glu Val Arg Gly Glu Val Phe Phe Ser  
                     165                    170                    175  
 Tyr Ser Thr Phe Gln Ile Ile Asn Glu Lys Gln Gln Gln Leu Glu Lys  
                     180                    185                    190  
 Thr Ile Phe Ala Asn Pro Arg Asn Ala Ala Gly Gly Thr Leu Lys Leu  
                     195                    200                    205  
 Leu Ser Pro Gln Glu Ser Arg Lys Arg Lys Leu Glu Ile Ser Ile Tyr  
  210                    215                    220  
 Asn Leu Ile Ala Pro Gly Asp Asn Asp Ser His Tyr Glu Asn Leu Gln  
  225                    230                    235                    240  
 Arg Cys Leu Glu Trp Gly Phe Pro Val Ser Gly Lys Pro Arg Leu Cys  
                     245                    250                    255  
 Ser Thr Pro Glu Glu Val Ile Ser Val Leu Lys Thr Ile Glu Thr Glu  
                     260                    265                    270  
 Arg Ala Ser Leu Pro Met Glu Ile Asp Gly Ala Val Ile Lys Val Asp  
                     275                    280                    285  
 Ser Leu Ala Ser Gln Arg Val Leu Gly Ala Thr Gly Lys His Tyr Arg  
                     290                    295                    300  
 Trp Ala Leu Ala Tyr Lys Tyr Ala Pro Glu Glu Ala Glu Thr Leu Leu  
  305                    310                    315                    320  
 Glu Asp Ile Leu Val Gln Val Gly Arg Thr Gly Val Leu Thr Pro Val  
                     325                    330                    335  
 Ala Lys Leu Thr Pro Val Leu Leu Ser Gly Ser Leu Val Ser Arg Ala  
                     340                    345                    350  
 Ser Leu Tyr Asn Glu Asp Glu Ile His Arg Lys Asp Ile Arg Ile Gly  
                     355                    360                    365  
 Asp Thr Val Cys Val Ala Lys Gly Gly Glu Val Ile Pro Lys Val Val  
                     370                    375                    380  
 Arg Val Cys Arg Glu Lys Arg Pro Glu Gly Ser Glu Val Trp Asn Met  
  385                    390                    395                    400  
 Pro Glu Phe Cys Pro Val Cys His Ser His Val Val Arg Glu Glu Asp  
                     405                    410                    415  
 Arg Val Ser Val Arg Cys Val Asn Pro Glu Cys Val Ala Gly Ala Ile

420 425 430  
 Glu Lys Ile Arg Phe Phe Val Gly Arg Gly Ala Leu Asn Ile Asp His  
 435 440 445  
 Leu Gly Val Lys Val Ile Thr Lys Leu Phe Glu Leu Gly Leu Val His  
 450 455 460  
 Thr Cys Ala Asp Leu Phe Gln Leu Thr Thr Glu Asp Leu Met Gln Ile  
 465 470 475 480  
 Pro Gly Ile Arg Glu Arg Ser Ala Arg Asn Ile Leu Glu Ser Ile Glu  
 485 490 495  
 Gln Ala Lys His Val Asp Leu Asp Arg Phe Leu Val Ala Leu Gly Ile  
 500 505 510  
 Pro Leu Ile Gly Ile Gly Val Ala Thr Val Leu Ala Gly His Phe Glu  
 515 520 525  
 Thr Leu Asp Arg Val Ile Ser Ala Thr Phe Glu Glu Leu Leu Ser Leu  
 530 535 540  
 Glu Gly Ile Gly Glu Lys Val Ala His Ala Ile Ala Glu Tyr Phe Ser  
 545 550 555 560  
 Asp Ser Thr His Leu Asn Glu Ile Lys Lys Met Gln Asp Leu Gly Val  
 565 570 575  
 Cys Ile Ser Pro Tyr His Lys Ser Gly Ser Thr Cys Phe Gly Lys Ala  
 580 585 590  
 Phe Val Ile Thr Gly Thr Leu Glu Gly Met Ser Arg Leu Asp Ala Glu  
 595 600 605  
 Thr Ala Ile Arg Asn Cys Gly Gly Lys Val Gly Ser Ser Val Ser Lys  
 610 615 620  
 Gln Thr Asp Tyr Val Val Met Gly Asn Asn Pro Gly Ser Lys Leu Glu  
 625 630 635 640  
 Lys Ala Arg Lys Leu Gly Val Ser Ile Leu Asp Gln Glu Ala Phe Thr  
 645 650 655  
 Asn Leu Ile His Leu Glu  
 660

&lt;210&gt;170

&lt;211&gt;441

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;170

Ile Ile Tyr Tyr Lys Phe Phe Tyr Ser Tyr Asn Cys Pro Tyr Phe Ile  
 1 5 10 15  
 Ser Phe Phe Val Leu Leu Gly Val Asn Met Ala Ser Ser Ser Asn Asn  
 20 25 30  
 Ser Thr Lys Gln Asp Gly Ile Pro Ser Trp Val Asn Pro Asn Val Gln  
 35 40 45  
 Trp Asn Arg Ala Ser Gln Val Gly Asp Gln Glu Ala Asn Ser Leu Thr  
 50 55 60  
 Pro Glu Ala Gln Thr Ser Arg Ser Trp Phe Ser Asp Arg Lys His Phe  
 65 70 75 80  
 Leu Glu Val Leu Asp Val Ser Leu Glu Glu Met Glu Asn Asn Asp Leu  
 85 90 95  
 Lys Lys Tyr Ser Arg Tyr Lys Thr Ile Ile Leu Ile Ala Thr Leu Val  
 100 105 110  
 Thr Val Ala Ile Thr Cys Ile Val Pro Ile Ser Met Val Phe Gly Ile  
 115 120 125  
 Pro Met Trp Val Pro Cys Leu Ile Leu Phe Gly Ala Gly Leu Ser Ser  
 130 135 140  
 Ala Phe Leu Ser His Arg Leu Gln Ser Lys Cys Lys Glu Ile His Leu  
 145 150 155 160  
 Arg Tyr Arg Ala Tyr Gln Ile Tyr Arg Gln Gln Leu Leu Ser Gln Tyr  
 165 170 175  
 Pro Asp Leu Arg Lys Ser Thr Leu Tyr Lys Tyr Ser Ile Thr His Val  
 180 185 190  
 Lys Pro Lys Lys Gly Phe Val Gly Lys Leu Val Glu Asn Leu Arg Pro  
 195 200 205  
 Asp Leu His Lys Asn Lys Asp Asp Gly Gly Ala Ala Ala Asp Ser Arg  
 210 215 220

Leu Asp Phe Ala Gly Tyr Gly Val Lys His Tyr Gln Thr Asp Ala Leu  
 225 230 235 240  
 Leu Gly Val Ser Gly Val Asn Ser Val Glu Trp Gln Arg Leu Ala Ser  
 245 250 255  
 Leu Ile Met Ser Val Lys Asn Asp Ile Leu Asn Asp Val Gly Ser Arg  
 260 265 270  
 Glu Pro Ile Asp Lys Ala Gln Arg Ser Ala Leu Val Val Ser Gly Lys  
 275 280 285  
 Asp Ile Gly Gly Glu Ile Gln Pro Gly Gly Ile Leu Asp Ile Ser Arg  
 290 295 300  
 Asp Ile Leu Ala Ile Cys Gly Tyr Gly Met Asn Val Gly Val Glu Ala  
 305 310 315 320  
 Lys Lys Ala Ile Asp Gln Tyr Lys Lys Trp Tyr Leu Asn Ser Ser Thr  
 325 330 335  
 Phe Ile Ala Trp Asn Pro Gln Leu Pro Ala Ile Ala Gln Ser Tyr Leu  
 340 345 350  
 Leu Glu Gln Gln Arg His Leu Asp Tyr Ala Ala Lys Ile Phe Gln Asp  
 355 360 365  
 Leu Ser Ala Leu Thr Thr Ala His Gly Thr Gly Gln Ala Leu Glu Asp  
 370 375 380  
 Leu Asp Ser Leu Leu Cys Tyr Tyr Asp Gln Leu Ile Glu Ser Lys Gly  
 385 390 395 400  
 Val Gly Glu Lys Ile Ile Ala Ser Ile His Gln Lys Ala Ser Arg Leu  
 405 410 415  
 Ser Asn Ala Arg Phe Leu Arg Ser Gly Thr Phe Lys Glu Met Val Glu  
 420 425 430  
 Ser Ile Pro Arg Val Phe Asn Tyr Tyr  
 435 440

&lt;210&gt;171

&lt;211&gt;1156

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;171

His Arg Phe Thr Arg Lys His Leu Asp Leu Ala Met Gln Asp Ser Cys  
 1 5 10 15  
 Asp Gln Glu His Leu Lys Lys Trp Ser Asn Leu Tyr His Val Phe Ser  
 20 25 30  
 Ile Thr Ile Lys Glu Phe Thr Glu Gly Lys Leu Glu Gln Asn Glu Val  
 35 40 45  
 Val Ser Arg Ile Gln Arg Leu Arg Gly Lys Leu Glu Lys Ser Lys Cys  
 50 55 60  
 Ser Ile Leu Gly Asn Cys Arg Thr Asn Ala Glu Tyr Ala Thr Lys Ser  
 65 70 75 80  
 Glu Lys Lys Leu Ala Asp Tyr Leu Leu Gln Ile Gly Asp Arg Glu Pro  
 85 90 95  
 Phe Leu Thr Gly Met His Lys Ala Ile Ala Thr Gly Lys Ala Ile Gln  
 100 105 110  
 Gly Lys Val Glu Gly Val Ile Ser Gln His Pro Glu Lys Gln Ile Met  
 115 120 125  
 Met Leu Arg Cys Ser Ile Glu Arg Leu Glu Gly Met Leu Arg Arg Glu  
 130 135 140  
 Asp Trp Gly Ala Ile Leu Gln Lys Asn Glu Asp Glu Val Leu Ala Leu  
 145 150 155 160  
 Lys Ser Thr Met Glu Ala Gln Leu Gln Gly Phe Lys Asp Leu Val Gly  
 165 170 175  
 Thr Trp Glu Gly Lys Tyr Gln Glu Phe Lys Lys Asn Lys Leu Ser Lys  
 180 185 190  
 Val Leu Val Tyr Asp Phe Thr Lys Ser Tyr Ser Asn Leu Leu Asn Arg  
 195 200 205  
 Leu Glu Val Leu His Ala Glu Ser Ser Thr Asp Asp Leu Val Leu His  
 210 215 220  
 Val Asp Arg Met Ser Glu Asp Leu Lys Lys Thr Ile Glu Glu Ile Asp  
 225 230 235 240  
 Gly Asn Leu Phe Gln Val Thr Pro Glu Glu Leu Ser Leu Leu Ala Arg

245 250 255  
 Glu Tyr Gln Gly Leu Met Asn Glu Leu Pro Leu Ile Val Gln Glu Gly  
 260 265 270  
 Asn Arg Leu Gln Glu Ala Ile Ser Ser Glu Gly Val Ser Gln Gly Leu  
 275 280 285  
 Met Leu Leu Asn Ser Leu Leu Asn Arg Asp Glu Lys Ile Asn Lys Asn  
 290 295 300  
 Ile Glu Ser Ser Arg Lys Asn Leu Val Ala Ile Ala Lys Gln Ala Arg  
 305 310 315 320  
 Ser Asp Ala Arg Asn Ile Asp Ser Gln Gly Leu Ala Pro Leu Ile Gln  
 325 330 335  
 Arg Asn Arg Ala Ser Leu Asp Asn Ile Leu Gln Asn Met Tyr Leu Phe  
 340 345 350  
 Asn Gly Ser Ile Arg Asn Ile His Ala Leu Asp Thr Glu Thr Leu Val  
 355 360 365  
 Ala Thr Ser Ser Asn Met Phe Ser Ala Met His Thr Phe Asp Trp Asn  
 370 375 380  
 Ile Tyr Thr Asn Leu Leu Asp Val Leu Glu Ile Gln Ser Lys Pro Ala  
 385 390 395 400  
 Pro Ala Pro Met Glu Asn Pro Asp Leu Pro Gly Ala Leu Pro Glu Glu  
 405 410 415  
 Val Gln Asp Ala Val Ala Glu Asp Val Ser Gly Thr His Arg Leu His  
 420 425 430  
 His Gln Val Leu Lys Arg Arg Cys Ala Asp Leu Lys Asn Met Ile Ser  
 435 440 445  
 Gln Leu Gln Lys Ser Ile Asn Lys Trp Gly Met Ala Lys Ala Ile Val  
 450 455 460  
 Leu Gly Ile Val Ala Val Leu Phe Cys Val Leu Ser Ala Ile Phe Ile  
 465 470 475 480  
 Gly Gln Asn Ile Leu Ser Leu Leu Ile Leu Ser Cys Val Gly Leu Leu  
 485 490 495  
 Leu Thr Gln Val Cys Pro Leu Ile Phe Asp Arg Ile Ser Lys Ser Lys  
 500 505 510  
 Glu Phe Glu Lys Gln Val Leu Glu Thr Ala Gln Ser Leu Ile Pro Ala  
 515 520 525  
 Thr Lys Ile Leu Pro Ser Glu Phe Asn Asn Lys Asp Leu Asn Arg Leu  
 530 535 540  
 Ala Lys Leu Gln Asp Asn Leu Asn Leu Glu Gly Phe Gly Pro Thr Trp  
 545 550 555 560  
 Ala Arg Asn Ile Val Ser Asp Leu Glu Gly Ile Pro Thr Lys Glu Lys  
 565 570 575  
 Ser Leu Lys Asp Leu Thr Lys Glu Phe Arg Lys Asp Ser Lys Asn Leu  
 580 585 590  
 Asn Lys Arg Ile Lys Arg Arg Phe Lys Glu Gly Leu Gly Gln Glu Ala  
 595 600 605  
 Pro Val Val Arg Pro Thr Ile Pro Gln Asp Ile Arg Gly Ala Glu Val  
 610 615 620  
 Phe Ala Glu Leu His Arg Glu Leu Glu His Leu Gln Lys Gln Lys Glu  
 625 630 635 640  
 Glu Ile Ser Ile Arg Gly Asp Ala Leu Val Gln Glu Arg Met Gly Leu  
 645 650 655  
 Cys Leu Glu Lys Ser Lys Tyr Asp Asn Glu Lys Ala His Ala Ala Ala  
 660 665 670  
 Met Thr Lys Lys Val Gly Lys Leu Gln Asn Ile Asp Arg Leu Gln Lys  
 675 680 685  
 Asn Asn Glu Thr Tyr Val Arg Ile Gln Asn Phe Phe Arg Thr Leu Ile  
 690 695 700  
 Gln Glu Lys Leu Gly Arg Asp Thr Val Gln Glu Ile Asp Val Val Lys  
 705 710 715 720  
 Glu Ala Lys Glu Leu His Glu Leu Ala Ala Ile Ile Tyr Gly Asn Thr  
 725 730 735  
 Ser Gly Lys Ser Gln Lys Gln Arg Ala Lys Lys Gln Phe Lys Glu Asn  
 740 745 750  
 Val Leu His Ile Ala Gly Lys Gly Gln Leu Glu Leu Leu Glu Ala Tyr

755 760 765  
 Leu Asn Val Thr Ala Ser Gln Gly Leu Cys Arg His Gln Met Gln Ala  
 770 775 780  
 Ser Phe Arg Glu Arg Ile Leu Leu Asn Pro Asp Gly Ala Lys His Gly  
 785 790 795 800  
 Glu Ala Glu Arg Thr Leu Ala Ser Arg Glu Glu Met Leu Lys Thr Leu  
 805 810 815  
 Gly Leu Ser Tyr Leu Thr Pro Phe Val Arg Phe Ser Ser Pro Glu Ser  
 820 825 830  
 Thr Gln Ser Gly Tyr Asn Gln Ile Leu Lys Val Arg Glu Gln Leu Phe  
 835 840 845  
 Asp Ile Glu Gln Arg Leu Gln Asn Gln Glu Thr Val Ser Pro Glu Asp  
 850 855 860  
 Tyr Ala Ala Val Gln Ala Leu Ala Ala Tyr Val Arg Lys His Glu  
 865 870 875 880  
 Ser Leu Ile Val Ser Thr Tyr Gly Leu Gly Ala Gln Glu Gly Gln Thr  
 885 890 895  
 Ser Ser Lys Val Thr Thr Leu Met Arg Asp Leu His Ala Val Glu Glu  
 900 905 910  
 Leu Val Glu Met Gly Val Glu Thr Tyr Arg Leu Asn Arg Ser Asp Gln  
 915 920 925  
 Ile Leu His Arg Val His Ser Val Leu His Ser His Leu Arg Asp Ser  
 930 935 940  
 Asp Ser Ser Gly Asn Gly Ile Ile Asp Val Val Lys Lys Leu Phe Glu  
 945 950 955 960  
 Leu Leu Asn Asn Asn Gly Asn Asn Pro Asn Asp Pro Glu Cys Gln Lys  
 965 970 975  
 Tyr Met Gln Ile Leu Leu Asp Ala Pro Val Ser Leu Leu Tyr Gly Ala  
 980 985 990  
 Phe Lys Ser Phe Lys Asn Glu Phe Leu Leu Asn Phe Thr Glu Leu Asn  
 995 1000 1005  
 Ile Ala Asn Ser Thr Lys Ala Ala Glu Glu Glu Ala Lys Arg Tyr Val  
 1010 1015 1020  
 Glu Glu Lys Gly Arg Gly Phe Glu Thr Tyr Trp Glu Glu Ala Lys Gln  
 1025 1030 1035 1040  
 Arg Leu Glu Ala Ile Ala Ala Glu Leu Asp Asp Leu Arg Asn Gln Glu  
 1045 1050 1055  
 Thr Leu Leu Glu Gln Glu Ile Arg Leu Ala Asn Leu Lys Ile Ser Ile  
 1060 1065 1070  
 Phe Ser Asp Leu Asn Leu Arg Glu Lys Val Ser Val Glu Lys Ala Ala  
 1075 1080 1085  
 Leu Glu Glu Glu Ile Gln Gly Ile Gln Glu Gln Tyr Ala Glu Met Gln  
 1090 1095 1100  
 Gly Ile Glu Asp Leu Glu Lys Gln Lys Phe Glu Asp Leu Gln Lys  
 1105 1110 1115 1120  
 Lys Leu Glu Ala Leu Glu Glu Arg Leu Leu Gln Ile Gly Arg Arg Ile  
 1125 1130 1135  
 Asp Ser Ser Val Asp Lys Gln Lys Glu Leu Leu Gly Leu Leu Gly Arg  
 1140 1145 1150  
 Glu Glu Ala Ala  
 1155  
 <210>172  
 <211>518  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>172  
 Cys Tyr Glu Asn Leu Phe His Tyr Pro Arg Ala Ser Met Ala Asp Ile  
 1 5 10 15  
 Leu Val Ile Gly Ala Asn Pro Thr Gly Leu Ile Leu Ala Asn Met Leu  
 20 25 30  
 Ile Gln His Gly Ile Ser Val Lys Val Ile Asp His Arg Ala Ser Pro  
 35 40 45  
 Glu Asp Pro Ser Phe Leu Asp Cys Arg Lys Leu Pro Val Ile Leu Ser  
 50 55 60

Cys Ser Ser Leu Glu Leu Leu His Asn Ser Glu Met Leu Gly Asp Phe  
 65 70 75 80  
 Ile Gln Ala Asn His Lys Ile Phe Gly Ala Arg Tyr His Trp Lys Lys  
 85 90 95  
 Arg Thr Leu Leu Phe Lys Phe Ser Gln Ala Thr Asp Ser Pro Val Pro  
 100 105 110  
 Phe Ser Leu Ser Thr Thr Tyr Gln Ser Leu Glu Gln His Leu Ile Asp  
 115 120 125  
 Glu Phe Leu Lys Arg Gly Gly Val Ile Asp Trp Ser Thr Arg Pro Val  
 130 135 140  
 Thr Leu Val Asp Asn Ser Ile Phe Ile Glu Ser Thr Lys Val Ser Gln  
 145 150 155 160  
 Asn Phe Glu Asn Arg Glu Ile Tyr Asn Pro Lys Trp Ile Ile Ala Cys  
 165 170 175  
 Glu Ala Asp Asn Asn Leu Asp Ile Arg Asp Leu Val Lys Ser Gln Leu  
 180 185 190  
 Arg Ala Arg Arg Ile Asn Arg Glu Val Ile Phe Ile Asn Cys Asp Glu  
 195 200 205  
 Gly Glu Pro Phe Glu Glu Asp His Ile His Leu Leu Pro Ile Thr Lys  
 210 215 220  
 Asn Phe Leu Asn Phe Val Phe Tyr Asn Pro Gln Glu Lys Thr Lys Gln  
 225 230 235 240  
 Leu Cys Leu Pro Gln Gly Thr His Ser Ile Ser Pro Lys Leu Lys Gln  
 245 250 255  
 Lys Leu Leu Tyr Thr Tyr Asn Leu Val Ile Ser Asp Glu Asn Phe His  
 260 265 270  
 Ile Lys Thr Ser His His Ala Phe Pro Pro Glu His Gly Asn Val Leu  
 275 280 285  
 Phe Leu Gly Ser Leu Ser Asn Thr Leu Leu Leu Ser Tyr Leu Asn Gly  
 290 295 300  
 Ile Asn Thr Asn Ile His Ala Ala Phe Asn Leu Ala Trp Lys Leu Leu  
 305 310 315 320  
 Pro Val Leu Lys Lys Ala Ala Leu Lys His Leu Val Ile Thr Lys Glu  
 325 330 335  
 Gln Glu Asp Gly Asn Ile Leu Pro Tyr Ile Ser Pro Thr Thr Glu Lys  
 340 345 350  
 Arg Ala Lys Lys Leu Pro Phe Ser Arg Phe Tyr Thr Pro Ala Leu Met  
 355 360 365  
 Tyr Tyr Phe Leu Lys Gly Cys Arg Lys Phe Asn Thr Thr Gly Glu Glu  
 370 375 380  
 Tyr Tyr Tyr Pro Pro His Gln Ala Leu Lys Tyr Arg Ser Ser Asp Ile  
 385 390 395 400  
 Ile Lys Met Ser Pro Gln Asp Lys Glu Ile His Gly Pro Gly Pro Gly  
 405 410 415  
 Met Arg Ala Ile Asp Ala Arg Leu Glu Asn Gly Ser Phe Leu Leu Asp  
 420 425 430  
 Pro Leu Lys Ser Ser Lys His Leu Leu Ile Phe Phe Lys Asp Ile Pro  
 435 440 445  
 Asp Leu Lys Glu Ala Leu Gln Glu Glu Tyr Gly Glu Trp Ile Glu Ile  
 450 455 460  
 Cys Asn Val Lys Glu Pro Arg Ile Leu Asn Leu Tyr His Ala Asn Pro  
 465 470 475 480  
 Asn Ser Leu Phe Ile Ile Arg Pro Asp Arg Tyr Ile Gly Tyr Arg Thr  
 485 490 495  
 His Thr Phe Lys Leu His Glu Leu Ile Ser Tyr Leu Leu Arg Ile Phe  
 500 505 510  
 Ala Ser Glu Lys Thr Ser  
 515  
 <210>173  
 <211>319  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>173  
 Leu Ile Lys Met Arg Lys Val Ala Phe Leu Val Ser Cys Leu Phe Ser

1 5 10 15  
 Val Ala Ile Gly Ala Ser Ala Ala Pro Val Arg Val Pro Gly Phe Pro  
 20 25 30  
 Gln Ile Pro Glu Asp Xaa Val Gln Ile Lys Thr Glu Val Cys Pro Lys  
 35 40 45  
 Gln Glu Val Cys Leu Ala Val Thr Ile Lys Cys Asp Asp His Asn Leu  
 50 55 60  
 Ile Gly Val Leu His Leu Pro Asn Thr Pro Thr Pro Glu Gly Gly Phe  
 65 70 75 80  
 Pro Thr Val Val Leu Phe His Gly Phe Arg Gly Thr Lys Phe Gly Gly  
 85 90 95  
 Leu Thr Gly Ala Tyr Arg Lys Leu Gly Arg Lys Phe Ala Ala Gly  
 100 105 110  
 Ile Ala Thr Leu Arg Val Asp Met Ala Gly Cys Gly Asp Ser Glu Gly  
 115 120 125  
 Val Ala Glu Glu Val Pro Ile Glu Thr Tyr Leu Arg Asp Ala Gln Thr  
 130 135 140  
 Ile Leu Glu Thr Val Gln Glu His Pro Asp Leu Asn Ala Tyr Arg Leu  
 145 150 155 160  
 Gly Ile Ser Gly Phe Ser Leu Gly Cys His Ile Ala Phe Glu Leu Ala  
 165 170 175  
 Lys Ile Tyr Asn Pro Arg Asp Leu Asn Ile Lys Ala Leu Ser Val Trp  
 180 185 190  
 Ala Pro Ile Ala Asp Gly Gly Ile Leu Leu Lys Glu Leu Tyr Glu Asn  
 195 200 205  
 Phe Ser Lys His Gly Glu Gly Asp Ile Ile Ser Val Gly Lys Asp Phe  
 210 215 220  
 Gly Phe Gly Pro Pro Pro Ile Ile Val Cys Ser Gly Asp Val Asp Leu  
 225 230 235 240  
 Leu Ile Arg Ile Gln Asp His Val Thr Ala Asn Ser Leu Pro Thr Lys  
 245 250 255  
 Pro Tyr Ile Leu His Gln Gln Gly Ile Asp Asp Thr Leu Val Ser Arg  
 260 265 270  
 Thr Gln Gln Thr Leu Phe Lys Asn Thr Ala Pro Gly Arg Met Thr Phe  
 275 280 285  
 Ile Ser Tyr Pro Asn Thr Gly His Asn Leu Ala Thr Ala Pro Asp Leu  
 290 295 300  
 Asp Met Ile Leu Asp Gln Ile Val Ser His Phe Gln Arg Thr Leu  
 305 310 315  
 <210>174  
 <211>507  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>174  
 Met Arg Tyr Asp Pro Asn Leu Ile Glu Lys Lys Trp Gln Gln Phe Trp  
 1 5 10 15  
 Lys Glu His Arg Ser Phe Gln Ala Asn Glu Asp Glu Asp Lys Val Lys  
 20 25 30  
 Tyr Tyr Val Leu Asp Met Phe Pro Tyr Pro Ser Gly Ala Gly Leu His  
 35 40 45  
 Val Gly His Leu Ile Gly Tyr Thr Ala Thr Asp Ile Val Ala Arg Tyr  
 50 55 60  
 Lys Arg Ala Arg Gly Phe Ser Val Leu His Pro Met Gly Trp Asp Ser  
 65 70 75 80  
 Phe Gly Leu Pro Ala Glu Gln Tyr Ala Ile Arg Thr Gly Thr His Pro  
 85 90 95  
 Lys Val Thr Thr Gln Lys Asn Ile Ala Asn Phe Lys Lys Gln Leu Ser  
 100 105 110  
 Ala Met Gly Phe Ser Tyr Asp Glu Gly Arg Glu Phe Ala Thr Ser Asp  
 115 120 125  
 Pro Asp Tyr Tyr His Trp Thr Gln Lys Leu Phe Leu Phe Leu Tyr Asp  
 130 135 140  
 Gln Gly Leu Ala Tyr Met Ala Asp Met Ala Val Asn Tyr Cys Pro Glu  
 145 150 155 160



Leu Gly Thr Val Leu Ser Asn Glu Glu Val Glu Asn Gly Phe Ser Ile  
 165 170 175  
 Glu Gly Gly Tyr Pro Val Glu Arg Lys Met Leu Arg Gln Trp Ile Leu  
 180 185 190  
 Lys Ile Thr Ala Tyr Ala Asp Lys Leu Leu Glu Gly Leu Asp Ala Leu  
 195 200 205  
 Asp Trp Pro Glu Asn Val Lys Gln Leu Gln Lys Asn Trp Ile Gly Lys  
 210 215 220  
 Ser Glu Gly Ala Leu Val Thr Xaa His Leu Thr Gln Glu Gly Ser Leu  
 225 230 235 240  
 Glu Ala Phe Thr Thr Arg Leu Asp Thr Leu Leu Gly Val Ser Phe Leu  
 245 250 255  
 Val Ile Ala Pro Glu His Pro Asp Leu Asp Ser Ile Val Ser Glu Glu  
 260 265 270  
 Gln Arg Asp Glu Val Thr Ala Tyr Val Gln Glu Ser Leu Arg Lys Ser  
 275 280 285  
 Glu Arg Asp Arg Ile Ser Ser Val Lys Thr Lys Thr Gly Val Phe Thr  
 290 295 300  
 Gly Asn Tyr Ala Lys His Pro Ile Thr Gly Asn Leu Leu Pro Val Trp  
 305 310 315 320  
 Ile Ser Asp Tyr Val Val Leu Gly Tyr Gly Thr Gly Val Val Met Gly  
 325 330 335  
 Val Pro Ala His Asp Glu Arg Asp Arg Glu Phe Ala Glu Met Phe Ser  
 340 345 350  
 Leu Pro Ile His Glu Val Ile Asp Asp Asn Gly Val Cys Ile His Ser  
 355 360 365  
 Asn Tyr Asn Asp Phe Cys Leu Asn Gly Leu Ser Gly Gln Glu Ala Lys  
 370 375 380  
 Asp Tyr Val Ile Asn Tyr Leu Glu Met Arg Ser Leu Gly Arg Ala Lys  
 385 390 395 400  
 Thr Met Tyr Arg Leu Arg Asp Trp Leu Phe Ser Arg Gln Arg Tyr Trp  
 405 410 415  
 Gly Glu Pro Ile Pro Ile Ile His Phe Glu Asp Gly Thr His Arg Pro  
 420 425 430  
 Leu Glu Asp Asp Glu Leu Pro Leu Leu Pro Pro Asn Ile Asp Asp Tyr  
 435 440 445  
 Arg Pro Glu Gly Phe Gly Gln Gly Pro Leu Ala Lys Ala Gln Asp Trp  
 450 455 460  
 Val His Ile Tyr Asp Glu Lys Thr Gly Arg Pro Gly Cys Arg Glu Thr  
 465 470 475 480  
 Tyr Thr Met Pro Gln Trp Ala Gly Ser Cys Trp Tyr Tyr Leu Arg Phe  
 485 490 495  
 Cys Asp Ala His Asn Tyr Ser Val Ala Leu Glu  
 500 505

&lt;210&gt;175

&lt;211&gt;198

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;175

Arg Arg Leu Lys Ile Gly Cys Ile Ser Thr Thr Arg Arg Gln Val Asp  
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 Gln Asp Val Glu Arg Leu Ile Leu Cys His Ser Gly Gln Ala Leu Ala  
 20 25 30  
 Gly Ile Ile Phe Val Ser Val Met His Thr Thr Thr Gln Leu Pro Trp  
 35 40 45  
 Ser Lys Glu Lys Glu Ser Tyr Trp Met Pro Val Asp Leu Tyr Ile Gly  
 50 55 60  
 Gly Ala Glu His Ala Val Leu His Leu Leu Tyr Ser Arg Phe Trp His  
 65 70 75 80  
 Arg Val Phe Tyr Asp Ala Gly Leu Val Ser Thr Pro Glu Pro Phe Lys  
 85 90 95  
 Lys Leu Ile Asn Gln Gly Leu Val Leu Ala Ser Ser Tyr Arg Ile Pro  
 100 105 110  
 Gly Lys Gly Tyr Val Ser Ile Glu Asp Val Arg Glu Glu Asn Gly Thr

115 120 125  
 Trp Ile Ser Thr Cys Gly Glu Ile Val Glu Val Arg Gln Glu Lys Met  
 130 135 140  
 Ser Lys Ser Lys Leu Asn Gly Val Asp Pro Gln Val Leu Ile Glu Glu  
 145 150 155 160  
 Tyr Gly Ala Asp Ala Leu Arg Met Tyr Ala Met Phe Ser Gly Pro Leu  
 165 170 175  
 Asp Lys Asn Lys Thr Trp Ser Asn Glu Gly Val Trp Gly Val Pro Ser  
 180 185 190  
 Phe Pro Lys Ser Phe Leu  
 195

&lt;210&gt;176

&lt;211&gt;163

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;176

Phe Gly Xaa Ser Ser Glu Val Gln Asp Ile Glu Asp Arg Asp Gly Leu  
 1 5 10 15  
 Val Leu Ala His Lys Leu Val Phe Arg Ile Thr Glu His Ile Glu Lys  
 20 25 30  
 Met Ser Leu Asn Thr Ile Pro Ser Ser Phe Met Glu Phe Leu Asn Asp  
 35 40 45  
 Phe Ser Lys Leu Pro Val Tyr Ser Lys Arg Ala Leu Ser Met Ala Val  
 50 55 60  
 Arg Val Leu Glu Pro Ile Xaa Pro His Ile Ser Glu Glu Leu Trp Val  
 65 70 75 80  
 Ile Leu Gly Asn Pro Pro Gly Ile Asp Gln Ala Ala Trp Pro Gln Ile  
 85 90 95  
 Asp Glu Ser Tyr Leu Val Ala Gln Thr Val Thr Phe Val Val Gln Val  
 100 105 110  
 Asn Gly Lys Leu Arg Gly Arg Leu Glu Val Ala Lys Glu Ala Pro Lys  
 115 120 125  
 Glu Glu Val Leu Ser Leu Ser Arg Ser Val Val Ala Lys Tyr Leu Glu  
 130 135 140  
 Asn Ala Gln Ile Arg Lys Glu Ile Tyr Val Pro Asn Lys Leu Val Asn  
 145 150 155 160  
 Phe Val Leu

&lt;210&gt;177

&lt;211&gt;437

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;177

Met Met Leu Arg Gly Val His Arg Ile Phe Lys Cys Phe Tyr Asp Val  
 1 5 10 15  
 Val Leu Val Cys Ala Phe Val Ile Ala Leu Pro Lys Leu Leu Tyr Lys  
 20 25 30  
 Met Leu Val Tyr Gly Lys Tyr Lys Lys Ser Leu Ala Val Arg Phe Gly  
 35 40 45  
 Leu Lys Lys Pro His Val Pro Gly Glu Gly Pro Leu Val Trp Phe His  
 50 55 60  
 Gly Ala Ser Val Gly Glu Val Arg Leu Leu Leu Pro Val Leu Glu Lys  
 65 70 75 80  
 Phe Cys Glu Glu Phe Pro Gly Trp Arg Cys Leu Val Thr Ser Cys Thr  
 85 90 95  
 Glu Leu Gly Val Gln Val Ala Ser Gln Val Phe Ile Pro Met Gly Ala  
 100 105 110  
 Thr Val Ser Ile Leu Pro Leu Asp Phe Ser Ile Ile Ile Lys Ser Val  
 115 120 125  
 Val Ala Lys Leu Arg Pro Ser Leu Ala Val Phe Ser Glu Gly Asp Cys  
 130 135 140  
 Trp Leu Asn Phe Ile Glu Glu Ala Lys Arg Ile Gly Ala Thr Thr Leu  
 145 150 155 160  
 Val Ile Asn Gly Arg Ile Ser Ile Asp Ser Ser Lys Arg Phe Lys Phe

165 170 175  
 Leu Lys Arg Leu Gly Lys Asn Tyr Phe Ser Pro Val Asp Gly Phe Leu  
 180 185 190  
 Leu Gln Asp Glu Val Gln Lys Gln Arg Phe Leu Ser Leu Gly Ile Pro  
 195 200 205  
 Glu His Lys Leu Gln Val Thr Gly Asn Ile Lys Thr Tyr Val Ala Ala  
 210 215 220  
 Gln Thr Ala Leu His Leu Glu Arg Glu Thr Trp Arg Asp Arg Leu Arg  
 225 230 235 240  
 Leu Pro Thr Asp Ser Lys Leu Val Ile Leu Gly Ser Met His Arg Ser  
 245 250 255  
 Asp Ala Gly Lys Trp Leu Pro Val Val Gln Lys Leu Ile Lys Glu Gly  
 260 265 270  
 Val Ser Val Leu Trp Val Pro Arg His Val Glu Lys Thr Lys Asp Val  
 275 280 285  
 Glu Glu Ser Leu His Arg Leu His Ile Pro Tyr Gly Leu Trp Ser Arg  
 290 295 300  
 Gly Ala Asn Phe Ser Tyr Val Pro Val Val Val Asp Glu Ile Gly  
 305 310 315 320  
 Leu Leu Lys Gln Leu Tyr Val Ala Gly Asp Leu Ala Phe Val Gly Gly  
 325 330 335  
 Thr Phe Asp Pro Lys Ile Gly Gly His Asn Leu Leu Glu Pro Leu Gln  
 340 345 350  
 Cys Glu Val Pro Leu Ile Phe Gly Pro His Ile Thr Ser Gln Ser Glu  
 355 360 365  
 Leu Ala Gln Arg Leu Leu Leu Ser Gly Ala Gly Leu Cys Leu Asp Glu  
 370 375 380  
 Ile Glu Pro Ile Ile Asp Thr Val Ser Phe Leu Leu Asn Asn Gln Glu  
 385 390 395 400  
 Val Arg Glu Ala Tyr Val Gln Lys Gly Lys Val Phe Val Lys Ala Glu  
 405 410 415  
 Thr Ala Ser Phe Asp Arg Thr Trp Arg Ala Leu Lys Ser Tyr Ile Pro  
 420 425 430  
 Leu Tyr Lys Asn Ser  
 435

&lt;210&gt;178

&lt;211&gt;179

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;178

Leu Leu Leu Glu Asp Leu Asp Thr Asp Ser Ile Pro Trp Pro Lys Leu  
 1 5 10 15  
 Tyr Leu Ser Glu Asp Phe Asp Phe Ala Tyr Tyr Pro Glu Ser Lys Ala  
 20 25 30  
 Ile Ile Asp Thr Val Ala Lys Leu Glu Lys Asn Asn Pro Gly Glu Glu  
 35 40 45  
 Phe Cys Leu Glu Ser Lys Lys Ile Leu Ala Arg Tyr Leu Leu Glu Gln  
 50 55 60  
 Leu Phe Lys Leu Glu Thr Gly Leu Asn Phe Pro Thr Ser Thr Ile Asp  
 65 70 75 80  
 Gly Gly Arg Glu Ser Phe Leu Ile Glu Phe Ser His Glu Thr Lys Lys  
 85 90 95  
 Pro Thr Val Trp Ala Phe Ile Tyr Phe Tyr Tyr Tyr His Ser Asn Gly  
 100 105 110  
 Pro Lys Leu Glu Lys Asp Phe Lys Gln Ala Gly Cys Glu Val His Asn  
 115 120 125  
 Arg Leu Leu Asn Leu Gly Leu Lys Tyr Arg Pro Gln Ala Gly Ala Gln  
 130 135 140  
 Asn Asp Gly Arg Asn Gly Gly Pro Tyr Gly Pro Ile Gly Phe Leu Ile  
 145 150 155 160  
 Val Trp Glu Glu Asn Tyr Gly Ser Val Leu Lys Asp His Gly Phe Ile  
 165 170 175  
 Lys Asp Asn

&lt;210&gt;179

&lt;211&gt;115

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;179

Cys Cys Phe Gly Gly Glu Thr Ala Thr Arg Ile Phe Ser Met Thr Pro  
 1 5 10 15  
 Ser Gly Phe Ser Leu Ala Thr Glu Glu Lys Val Gln Val Ser Thr Ala  
 20 25 30  
 Glu Lys Val Ile Lys Ile Leu Ala Leu Ile Phe Phe Pro Ile Ile Leu  
 35 40 45  
 Ile Ala Leu Ala Ile Arg Tyr Phe Leu His Arg Lys Phe Asp Arg Lys  
 50 55 60  
 Cys Phe Val Ile Pro Gln Asp Thr Pro Lys Glu Leu Glu Leu Ile Leu  
 65 70 75 80  
 Ala Ala Asn Pro Gln Leu Val Glu Lys Ala Ala Arg Glu Val His Pro  
 85 90 95  
 Gly Phe Phe Ala Leu Pro Thr Lys Tyr Gln Ser Met Tyr Ile Gln Thr  
 100 105 110  
 Ser Lys Gly  
 115

&lt;210&gt;180

&lt;211&gt;544

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;180

Thr Val Glu Leu Leu Ser Leu Asn Lys Ser Tyr Phe Glu Ile Gln Arg  
 1 5 10 15  
 Leu Arg Tyr Arg Pro Glu Ile Leu Thr Leu Leu Glu Thr Ile Arg Ser  
 20 25 30  
 Lys His Ile Gln Glu Thr Ser Ser Pro Pro Ser Pro Pro Pro Glu Leu  
 35 40 45  
 Gln Lys His Ile Pro Asn Leu Cys Arg Ile Pro Glu Val Ser Ile Tyr  
 50 55 60  
 Thr Glu Gln Glu Thr Ser Ser Lys Pro Leu Lys Ile Gly Val Leu Leu  
 65 70 75 80  
 Ser Gly Gly Gln Ala Pro Gly Gly His Asn Val Val Ile Gly Leu Phe  
 85 90 95  
 Asp Ala Leu Arg Val Phe Asn Pro Lys Thr Arg Leu Phe Gly Phe Ile  
 100 105 110  
 Lys Gly Pro Leu Gly Leu Thr Arg Gly Leu Tyr Lys Asp Leu Asp Ile  
 115 120 125  
 Ser Val Ile Tyr Asp Tyr Tyr Asn Met Gly Gly Phe Asp Met Leu Ser  
 130 135 140  
 Ser Ser Arg Glu Lys Ile Lys Thr Glu Glu Gln Lys Lys Asn Ile Leu  
 145 150 155 160  
 Asn Thr Val Lys Gln Leu Lys Leu Asp Gly Leu Leu Ile Ile Gly Gly  
 165 170 175  
 Asn Asn Ser Asn Thr Asp Thr Ala Met Leu Ala Glu Tyr Phe Leu Ala  
 180 185 190  
 His Asn Cys Lys Thr Ser Val Ile Gly Val Pro Lys Thr Ile Asp Gly  
 195 200 205  
 Asp Leu Lys Asn Cys Trp Ile Glu Thr Ser Leu Gly Phe His Thr Ser  
 210 215 220  
 Cys Arg Thr Tyr Ser Glu Met Ile Gly Asn Leu Ala Lys Asp Ala Leu  
 225 230 235 240  
 Ser Ala Lys Lys Tyr His His Phe Ile Arg Leu Met Gly Gln Gln Ala  
 245 250 255  
 Ser Tyr Thr Thr Leu Glu Cys Gly Leu Gln Thr Leu Pro Asn Ile Ala  
 260 265 270  
 Leu Ile Ser Glu Leu Ile Ala Thr Arg Lys Ile Ser Leu Lys Gln Leu  
 275 280 285  
 Ser Glu Gln Leu Ala Leu Gly Leu Val Arg Arg Tyr Lys Ser Gly Lys  
 290 295 300

Asn Tyr Ser Thr Val Leu Ile Pro Glu Gly Leu Ile Glu His Ile Phe  
 305 310 315 320  
 Asp Thr Arg Lys Leu Ile Asp Glu Leu Asn Val Leu Leu Ala Asn Gly  
 325 330 335  
 Asp Ser Ser Met Lys Asn Ser Phe Gln Ala Leu Ser Arg Asp Ile Lys  
 340 345 350  
 Thr Phe His Leu Phe Pro Lys Asp Ile Ala Asn Gln Leu Leu Leu Ala  
 355 360 365  
 Arg Asp Ser His Gly Asn Val Arg Val Ser Lys Ile Ala Thr Glu Glu  
 370 375 380  
 Leu Leu Ala Val Met Val Lys Lys Glu Ile Glu Lys Ile Lys Pro His  
 385 390 395 400  
 Met Glu Phe His Ser Val Ser His Phe Phe Gly Tyr Glu Ala Arg Ala  
 405 410 415  
 Gly Phe Pro Ser Asn Phe Asp Cys Asn Tyr Gly Ile Ala Leu Gly Ile  
 420 425 430  
 Ile Ser Ala Leu Phe Leu Val Arg Gln Lys Thr Gly Tyr Met Ile Thr  
 435 440 445  
 Ile Asn Asn Leu Ala Gln Ser Tyr Thr Glu Trp Gln Gly Gly Ala Thr  
 450 455 460  
 Pro Leu Tyr Lys Met Met His Leu Glu Asn Arg Cys Gly Thr Glu Thr  
 465 470 475 480  
 Pro Val Ile Lys Thr Asp Ser Val Asp Pro Lys Ser Pro Ala Val Gln  
 485 490 495  
 His Leu Leu Gln Gln Ser Asp Ser Cys Leu Val Glu Asp Leu Tyr Arg  
 500 505 510  
 Phe Pro Gly Pro Leu Gln Tyr Phe Gly Lys Glu Glu Leu Ile Asp Gln  
 515 520 525  
 Arg Pro Leu Thr Leu Leu Trp Glu Asn Gln Thr His Ser Pro Leu Leu  
 530 535 540

&lt;210&gt;181

&lt;211&gt;275

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;181

Leu Ile Thr Gly Val Val Leu Glu Lys His Glu Gln Arg Thr Met Phe  
 1 5 10 15  
 Ser Leu Thr Leu Leu Asn Asn Phe Thr Thr Phe Gly Leu Leu His Thr  
 20 25 30  
 Pro Leu His Tyr Asn Pro Pro Tyr Pro Ile Val Ile Leu Leu His Gly  
 35 40 45  
 Leu Ala Ser Asp Lys Thr Gly Ser Lys Arg Ser His Val Arg Leu Ala  
 50 55 60  
 Gln Glu Leu Thr Arg Leu Gly Ile Ala Ala Leu Arg Val Asp Leu Leu  
 65 70 75 80  
 Gly His Gly Asp Cys Glu Gly Glu Leu Met Asp Phe Ser Leu Glu Asn  
 85 90 95  
 Tyr Lys Gln Asn Ile Arg Glu Ile Ile Glu Tyr Thr His Ser Leu Leu  
 100 105 110  
 His Ile Asp Gln Glu Arg Leu Ala Ile Phe Gly Ser Ser Leu Gly Gly  
 115 120 125  
 Thr Leu Ala Leu Gln Thr Leu Pro Phe Phe Asn Lys Ile Lys Ala Leu  
 130 135 140  
 Ala Val Trp Ala Pro Thr Ile Ser Gly Glu Leu Met Ala Ala Glu Ala  
 145 150 155 160  
 Gln Lys Asn Ala Pro Glu Val Ile Thr Met Ser Gln Lys Gly Ala Ile  
 165 170 175  
 Thr Tyr Ala Gly Met Thr Leu Asn Pro Asp Phe Tyr Thr Gln Phe Leu  
 180 185 190  
 Lys Ile Asp Ile Val Lys Glu Leu Met Pro Ser Ala Arg Asn Leu Pro  
 195 200 205  
 Pro Ile Leu Tyr Met Gln Gly Glu Gln Asp Leu Leu Val Ser Ile Asn  
 210 215 220  
 His Arg Thr Leu Phe Thr Glu Ala Phe Ala Asn Gln Asp Lys Pro Ile

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Glu | Lys | Ala | Ile | Val | Tyr | Cys | Ile | Lys | Cys | Lys | Gln | Ile | Ile | Lys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Cys | Ile | Ser | Ile | Ile | His | Thr | Pro | Thr | Pro | Ala | Thr | Pro | Leu | Cys | Thr |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Glu | Gly | Glu | Ile | Phe | Pro | Gly | Leu | Val | Asp | Ser | Ala | Ile | Gln | Asn | Asp |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Leu | Glu | Arg | Leu | Leu | Thr | Val | Lys | Lys | Arg | Pro | Asp | Ile | Ile | Arg | Glu |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Tyr | Leu | Arg | Ala | Gly | Gly | Ser | Leu | Val | Thr | Thr | Tyr | Pro | Lys | Glu | Gly |
|     | 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Gln | Arg | Leu | Arg | Ser | Pro | Glu | Gln | Leu | Arg | Val | Leu | Asp | Asp | Leu | Val |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Gln | Ser | Tyr | Pro | Asn | His | Leu | His | Ala | Ile | Glu | Leu | Asp | Cys | Gly | Ala |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ile | Pro | Gln | Asp | Leu | Ile | Gly | Ala | Thr | Tyr | Ile | Ile | Thr | Phe | Ala | Asn |

115 120 125  
 Phe Ser Thr Tyr Ile Leu Ser Leu Arg Ser Tyr Gln Ala Asn Ser Pro  
 130 135 140  
 Ser Asp Asp Thr Trp Gly Ile Trp Phe Gly Ser Ile Asp Asp Pro Val  
 145 150 155 160  
 Gln Ala Val Ile Ser Phe Leu Lys Asp His Gly Phe Ala Leu Pro Ser  
 165 170 175  
 Thr Leu Ala Gln Asp Pro Leu Leu Cys Thr Asn Lys  
 180 185

&lt;210&gt;184

&lt;211&gt;185

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;184

Leu Cys Phe Lys Cys Ile Tyr Ile Lys Ile Ile Phe Ser Phe Leu Lys  
 1 5 10 15  
 Gln Leu Met Thr Arg Ser Thr Ile Glu Ser Ser Asp Ser Leu Cys Ser  
 20 25 30  
 Arg Ser Phe Ser Gln Lys Leu Ser Val Gln Thr Leu Lys Asn Leu Cys  
 35 40 45  
 Glu Ser Arg Leu Met Lys Ile Thr Ser Leu Val Ile Ala Phe Leu Thr  
 50 55 60  
 Leu Ile Val Gly Gly Ala Leu Ile Ala Leu Ala Gly Gly Gly Val Leu  
 65 70 75 80  
 Ser Phe Pro Leu Gly Leu Ile Leu Gly Ser Val Leu Val Leu Phe Ser  
 85 90 95  
 Ser Ile Tyr Leu Val Ser Cys Cys Lys Phe Phe Thr Leu Lys Glu Met  
 100 105 110  
 Thr Met Thr Cys Ser Val Lys Ser Lys Ile Asn Ile Trp Phe Glu Lys  
 115 120 125  
 Gln Arg Asn Lys Asp Ile Glu Lys Ala Leu Glu Asn Pro Asp Leu Xaa  
 130 135 140  
 Gly Glu Asn Lys Arg Asn Val Gly Asn Arg Ser Ala Arg Asn Gln Leu  
 145 150 155 160  
 Glu Met Ile Leu His Glu Thr Asp Gly Ile Ile Leu Lys Arg Tyr Met  
 165 170 175  
 Lys Gly Ala Lys Met Tyr Phe Tyr Leu  
 180 185

&lt;210&gt;185

&lt;211&gt;200

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;185

Asn Val Leu Leu Phe Met Asn Trp Val Pro Lys Thr Ile Asp His Val  
 1 5 10 15  
 Asp Pro Glu Ser Glu Ile Asp Ile Arg Lys Val Val Ser Cys Tyr Lys  
 20 25 30  
 Leu Ile Lys Glu Cys Gln Pro Glu Phe Arg Ser Leu Ile Ser Glu Leu  
 35 40 45  
 Leu Gly Val Ile Arg Cys Gly Leu Arg Leu Leu Lys Arg Ser Lys Tyr  
 50 55 60  
 Gln Glu Gln Ala Arg Thr Val Ser Asp Glu Asp Ala Pro Leu Phe Cys  
 65 70 75 80  
 Leu Thr Arg Ser Tyr Tyr Gln Asp Gly Tyr Leu Thr Pro Leu Arg Ala  
 85 90 95  
 Gly Pro Arg Asp Leu Ile Asn His Tyr Ile His Leu Arg Arg Arg Glu  
 100 105 110  
 Asn Pro Lys His Phe Phe Ser Pro Lys His Pro Cys Tyr Tyr Ala Arg  
 115 120 125  
 Leu Ala Phe Asn Glu Ser Val Cys Val Tyr Arg Glu Leu Phe Asp Ile  
 130 135 140  
 Glu Arg Leu Thr Lys Met Tyr Val Glu Gly Asp Tyr Ser Lys Glu Gln  
 145 150 155 160  
 Glu Lys Asn Leu Gln Ala Ile Leu Ser Phe Val Lys Thr Leu Asp Glu

165 170 175  
 Gly Lys Asp Phe Leu Ile Glu His Lys Asp Thr Asp Leu Ile Gly Arg  
 180 185 190  
 Gly Phe Thr Asp Val Phe Cys Thr  
 195 200  
 <210>186  
 <211>111  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>186  
 Asn Leu Trp Ser His Phe Pro Arg Gly Phe Phe Met Leu Pro Phe Cys  
 1 5 10 15  
 Pro Thr Ile Leu Leu Ala Lys Pro Phe Leu Asn Ser Glu Asn Tyr Gly  
 20 25 30  
 Leu Glu Arg Leu Ala Ala Thr Val Asp Ser Tyr Phe Asp Leu Gly Gln  
 35 40 45  
 Ser Gln Ile Val Phe Leu Ser Lys Gln Asp Gln Gly Ile Thr Val Glu  
 50 55 60  
 Glu Leu Ser Ala Lys Asp Arg Lys Phe Lys Pro Gly Ser Met Asn Cys  
 65 70 75 80  
 Thr Leu Tyr Thr Glu Asp Pro Ile Leu Pro Ala His Asn Ser Phe Ser  
 85 90 95  
 Asn Cys Ser Asp Ile Gln Met Arg Thr Pro Ile Ser Pro Ile His  
 100 105 110  
 <210>187  
 <211>276  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>187  
 Ser Phe His Ile Glu Phe Thr Ile Gly Glu Asn Asn Met Lys Asn Val  
 1 5 10 15  
 Gly Ser Glu Cys Ser Gln Pro Leu Val Met Glu Leu Asn Thr Gln Pro  
 20 25 30  
 Leu Arg Asn Leu Cys Glu Ser Arg Leu Val Lys Ile Thr Ser Phe Val  
 35 40 45  
 Ile Ala Leu Leu Ala Leu Val Gly Gly Ile Thr Leu Thr Ala Leu Ala  
 50 55 60  
 Gly Ala Gly Ile Leu Ser Phe Leu Pro Trp Leu Val Leu Gly Ile Val  
 65 70 75 80  
 Leu Val Val Leu Cys Ala Leu Phe Leu Leu Phe Ser Tyr Lys Phe Cys  
 85 90 95  
 Pro Ile Lys Glu Leu Gly Val Val Tyr Asn Thr Asp Ser Gln Ile His  
 100 105 110  
 Gln Trp Phe Gln Lys Gln Arg Asn Lys Asp Leu Glu Lys Ala Thr Glu  
 115 120 125  
 Asn Pro Glu Leu Phe Gly Glu Asn Arg Ala Glu Asp Asn Asn Arg Ser  
 130 135 140  
 Ala Arg Ser Gln Val Lys Glu Thr Leu Arg Asp Cys Asp Gly Asn Val  
 145 150 155 160  
 Leu Lys Lys Ile Tyr Glu Arg Asn Leu Asp Val Leu Leu Phe Met Asn  
 165 170 175  
 Trp Val Pro Lys Thr Met Asp Asp Val Asp Pro Val Ser Glu Asp Ser  
 180 185 190  
 Ile Arg Thr Val Ile Ser Cys Tyr Lys Leu Ile Lys Ala Cys Lys Pro  
 195 200 205  
 Glu Phe Arg Ser Leu Ile Ser Glu Leu Leu Arg Ala Met Gln Ser Gly  
 210 215 220  
 Leu Gly Leu Leu Ser Arg Cys Ser Arg Tyr Gln Glu Arg Ala Lys Thr  
 225 230 235 240  
 Val Ser His Lys Asp Ala Pro Leu Phe Cys Pro Thr His Ser Tyr Tyr  
 245 250 255  
 Arg Asp Gly Tyr Leu Thr Pro Leu Arg Ala Gly Pro Arg Tyr Ile Ile  
 260 265 270  
 Asn Arg Ala Ile



275  
 <210>188  
 <211>358  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>188  
 Asn Val Arg Lys Asn His Ile Ile Arg Gly Glu Lys Tyr Asn Thr Cys  
 1 5 10 15  
 Thr Val Ile Ala Phe Val Leu Ser Met Ser Tyr Asp Thr Leu Phe Lys  
 20 25 30  
 Asn Leu Glu Lys Glu Asp Ser Val His Lys Ile Cys Asn Glu Ile Phe  
 35 40 45  
 Ala Leu Val Pro Arg Leu Asn Thr Ile Ala Cys Thr Glu Ala Ile Ile  
 50 55 60  
 Lys Asn Leu Pro Lys Ala Asp Ile His Val His Leu Pro Gly Thr Ile  
 65 70 75 80  
 Thr Pro Gln Leu Ala Trp Ile Leu Gly Val Lys Asn Gly Phe Leu Lys  
 85 90 95  
 Trp Ser Tyr Asn Ser Trp Thr Asn His Arg Leu Leu Ser Pro Lys Asn  
 100 105 110  
 Pro His Lys Gln Tyr Ser Asn Ile Phe Arg Asn Phe Gln Asp Ile Cys  
 115 120 125  
 His Glu Lys Asp Pro Asp Leu Ser Val Leu Gln Tyr Asn Ile Leu Asn  
 130 135 140  
 Tyr Asp Phe Asn Ser Phe Asp Arg Val Met Ala Thr Val Gln Gly His  
 145 150 155 160  
 Arg Phe Pro Pro Gly Gly Ile Gln Asn Glu Glu Asp Leu Leu Leu Ile  
 165 170 175  
 Phe Asn Asn Tyr Leu Gln Gln Cys Leu Asp Asp Thr Ile Val Tyr Thr  
 180 185 190  
 Glu Val Gln Gln Asn Ile Arg Leu Ala His Val Leu Tyr Pro Ser Leu  
 195 200 205  
 Pro Glu Lys His Ala Arg Met Lys Phe Tyr Gln Ile Leu Tyr Arg Ala  
 210 215 220  
 Ser Gln Thr Phe Ser Lys His Gly Ile Thr Leu Arg Phe Leu Asn Cys  
 225 230 235 240  
 Phe Asn Lys Thr Phe Ala Pro Gln Ile Asn Thr Gln Glu Pro Ala Gln  
 245 250 255  
 Glu Ala Val Gln Trp Leu Gln Glu Val Asp Ser Thr Phe Pro Gly Leu  
 260 265 270  
 Phe Val Gly Ile Gln Ser Ala Gly Ser Glu Ser Ala Pro Gly Ala Cys  
 275 280 285  
 Pro Lys Arg Leu Ala Ser Gly Tyr Arg Asn Ala Tyr Asp Ser Gly Phe  
 290 295 300  
 Gly Cys Ala Ala His Ala Gly Glu Gly Ile Glu Thr Arg Thr Ile Phe  
 305 310 315 320  
 Ser Ser Ala Lys Val Asn Pro Glu Gly Leu Ile Glu Ile Thr Arg Val  
 325 330 335  
 Thr Phe Ser Ser Leu Lys Arg Lys Gln Pro Ser Ser Leu Pro Ile Arg  
 340 345 350  
 Val Thr Cys Gln Leu Gly  
 355

<210>189  
 <211>429  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>189  
 Leu Gln Ser Ala Arg Arg His Leu Asn Thr Ile Phe Ile Leu Asp Phe  
 1 5 10 15  
 Gly Ser Gln Tyr Thr Tyr Val Leu Ala Lys Gln Val Arg Lys Leu Phe  
 20 25 30  
 Val Tyr Cys Glu Val Leu Pro Trp Asn Ile Ser Val Gln Cys Leu Lys  
 35 40 45  
 Glu Arg Ala Pro Leu Gly Ile Ile Leu Ser Gly Gly Pro His Ser Val

50 55 60  
 Tyr Glu Asn Lys Ala Pro His Leu Asp Pro Glu Ile Tyr Lys Leu Gly  
 65 70 75 80  
 Ile Pro Ile Leu Ala Ile Cys Tyr Gly Met Gln Leu Met Ala Arg Asp  
 85 90 95  
 Phe Gly Gly Thr Val Ser Pro Gly Val Gly Glu Phe Gly Tyr Thr Pro  
 100 105 110  
 Ile His Leu Tyr Pro Cys Glu Leu Phe Lys His Ile Val Asp Cys Glu  
 115 120 125  
 Ser Leu Asp Thr Glu Ile Arg Met Ser His Arg Asp His Val Thr Thr  
 130 135 140  
 Ile Pro Glu Gly Phe Asn Val Ile Ala Ser Thr Ser Gln Cys Ser Ile  
 145 150 155 160  
 Ser Gly Ile Glu Asn Thr Lys Gln Arg Leu Tyr Gly Leu Gln Phe His  
 165 170 175  
 Pro Glu Val Ser Asp Ser Thr Pro Thr Gly Asn Lys Ile Leu Glu Thr  
 180 185 190  
 Phe Val Gln Glu Ile Cys Ser Ala Pro Thr Leu Trp Asn Pro Leu Tyr  
 195 200 205  
 Ile Gln Gln Asp Leu Val Ser Lys Ile Gln Asp Thr Val Ile Glu Val  
 210 215 220  
 Phe Asp Glu Val Ala Gln Ser Leu Asp Val Gln Trp Leu Ala Gln Gly  
 225 230 235 240  
 Thr Ile Tyr Ser Asp Val Ile Glu Ser Ser Arg Ser Gly His Ala Ser  
 245 250 255  
 Glu Val Ile Lys Ser His His Asn Val Gly Gly Leu Pro Lys Asn Leu  
 260 265 270  
 Lys Leu Lys Leu Val Glu Pro Leu Arg Tyr Leu Phe Lys Asp Glu Val  
 275 280 285  
 Arg Ile Leu Gly Glu Ala Leu Gly Leu Ser Ser Tyr Leu Leu Asp Arg  
 290 295 300  
 His Pro Phe Pro Gly Pro Gly Leu Thr Ile Arg Val Ile Gly Glu Ile  
 305 310 315 320  
 Leu Pro Glu Tyr Leu Ala Ile Leu Arg Arg Ala Asp Leu Ile Phe Ile  
 325 330 335  
 Glu Glu Leu Arg Lys Ala Lys Leu Tyr Asp Lys Ile Ser Gln Ala Phe  
 340 345 350  
 Ala Leu Phe Leu Pro Ile Lys Ser Val Ser Val Lys Gly Asp Cys Arg  
 355 360 365  
 Ser Tyr Gly Tyr Thr Ile Ala Leu Arg Ala Val Glu Ser Thr Asp Phe  
 370 375 380  
 Met Thr Gly Arg Trp Ala Tyr Leu Pro Cys Asp Val Leu Ser Ser Cys  
 385 390 395 400  
 Ser Ser Arg Ile Ile Asn Glu Ile Pro Glu Val Ser Arg Val Val Tyr  
 405 410 415  
 Asp Ile Ser Asp Lys Pro Pro Ala Thr Ile Glu Trp Glu  
 420 425

&lt;210&gt;190

&lt;211&gt;266

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;190

Ala Pro Ile Gly Ala Ala Ile Gly Ile Gly Pro Leu Gly Ile Ser Arg  
 1 5 10 15  
 Ala His His Leu Val Glu Ala Gly Ala Asn Val Leu Val Ile Asp Thr  
 20 25 30  
 Ala His Ala His Ser Lys Gly Val Phe Gln Thr Val Leu Glu Ile Lys  
 35 40 45  
 Ser Gln Phe Pro Gln Ile Ser Leu Val Val Gly Asn Leu Val Thr Ala  
 50 55 60  
 Glu Ala Ala Val Ser Leu Ala Glu Ile Gly Val Asp Ala Val Lys Val  
 65 70 75 80  
 Gly Ile Gly Pro Gly Ser Ile Cys Thr Thr Arg Ile Val Ser Gly Val  
 85 90 95

Gly Tyr Pro Gln Ile Thr Ala Ile Thr Asn Val Ala Lys Ala Leu Lys  
                   100                  105                  110  
 Asn Ser Ala Val Thr Val Ile Ala Asp Gly Arg Ile Arg Tyr Ser Gly  
                   115                  120                  125  
 Asp Val Val Lys Ala Leu Ala Ala Gly Ala Asp Cys Val Met Leu Gly  
                   130                  135                  140  
 Ser Leu Leu Ala Gly Thr Asp Glu Ala Pro Gly Asp Ile Val Ser Ile  
                   145                  150                  155                  160  
 Asp Glu Lys Leu Phe Lys Arg Tyr Arg Gly Met Gly Ser Leu Gly Ala  
                   165                  170                  175  
 Met Lys Gln Gly Ser Ala Asp Arg Tyr Phe Gln Thr Gln Gly Gln Lys  
                   180                  185                  190  
 Lys Leu Val Pro Gly Gly Val Glu Gly Leu Val Ala Tyr Lys Gly Ser  
                   195                  200                  205  
 Val His Asp Val Leu Tyr Gln Ile Leu Gly Gly Ile Arg Ser Gly Met  
                   210                  215                  220  
 Gly Tyr Val Gly Ala Glu Thr Leu Lys Asp Leu Lys Thr Lys Ala Ser  
                   225                  230                  235                  240  
 Phe Val Arg Ile Thr Glu Ser Gly Arg Ala Glu Ser His Ile His Asn  
                   245                  250                  255  
 Ile Tyr Lys Val Gln Pro Thr Leu Asn Tyr  
                   260                  265

&lt;210&gt;191

&lt;211&gt;170

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;191

Lys Ile Phe Ile Trp Phe Val Glu Lys Ile Val Ile Leu Ser Met Ile  
                   1                  5                  10                  15  
 Met Thr Thr Ile Ser Asn Ser Pro Ser Pro Ala Leu Asn Pro Glu Leu  
                   20                  25                  30  
 Ser Leu Ile Pro Pro Pro Thr Leu Val Ser Ser Gly Thr Gln Thr Ser  
                   35                  40                  45  
 Leu Ala Tyr Thr Ile Pro Ala Gln Gly Arg Arg Ser Thr Leu Arg Ile  
                   50                  55                  60  
 Ile Leu Asp Ile Phe Ile Ile Ile Leu Gly Leu Ala Thr Ile Ile Ser  
                   65                  70                  75                  80  
 Thr Phe Ile Val Ile Phe Phe Leu Asn Gly Leu Asn Leu Leu Ser Thr  
                   85                  90                  95  
 Pro Ser Ile Ile Ser Ser Ser Cys Leu Ile Ile Val Gly Leu Leu Phe  
                   100                  105                  110  
 Leu Ile Met Gly Leu Tyr Phe Met Ile Ser Ser Leu Asp Gln Gly Leu  
                   115                  120                  125  
 Val Gly Leu Leu Gln Lys Glu Leu Ser Gln Ala Glu Glu Arg Glu Glu  
                   130                  135                  140  
 Glu Tyr Ile Gln Glu Ile Glu Ala Leu Arg Gly Ala Pro Arg Ala Glu  
                   145                  150                  155                  160  
 Ser Pro Thr Glu Ser Pro Ser Thr Trp Leu  
                   165                  170

&lt;210&gt;192

&lt;211&gt;140

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;192

Leu Leu Leu Ala Cys Phe Gln Phe Leu Leu Arg Arg Arg Asp Met Glu  
                   1                  5                  10                  15  
 Gln Pro Asn Cys Val Ile Gln Asp Thr Thr Thr Val Leu Tyr Ala Leu  
                   20                  25                  30  
 Asn Ser Phe Asp Pro Arg Leu Ser Asp Asp Thr His Arg Leu Gly Lys  
                   35                  40                  45  
 Gln Ser Pro Leu Glu Ala Glu Asn Ala Leu Gly Glu Phe Ile Glu Gly  
                   50                  55                  60  
 Leu Asp Thr Asn Ser Phe Pro Leu Glu Glu Val Ala Ile Pro Ile Leu  
                   65                  70                  75                  80

Pro Gly Tyr His Pro Lys Phe Tyr Leu Ser Phe Ile Asp Arg Asp Asp  
                     85                    90                    95  
 Gln Gly Val His Tyr Glu Val Leu Asp Gly Val Phe Leu Lys Thr Val  
                     100                    105                    110  
 Ala Ala Cys Ile Ile Glu Asn Ser Phe Leu Thr Asp Ser Met Ser Pro  
                     115                    120                    125  
 Glu Leu Leu Ser Glu Val Lys Glu Ala Leu Lys Arg  
                     130                    135                    140  
 <210>193  
 <211>416  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>193  
 Asn Asp Asp Asp Pro Met Asp Glu Ser Asp Gly Glu Glu Ala Ser Lys  
   1                    5                    10                    15  
 Asp Ser Ala Phe Ser Ala Ser Phe Ser Tyr Glu Phe Val Lys Ser Ser  
                     20                    25                    30  
 Thr Arg Glu Ser Lys Asn Thr Val Thr His Ser Thr Ala Ser Arg Thr  
                     35                    40                    45  
 Leu Tyr Ile Leu Arg Gln Asp Cys Ser Tyr Asp Pro Arg Ala Leu Lys  
                     50                    55                    60  
 Val Asp Asp Glu Phe Arg Tyr Trp Val Glu Lys Arg Leu Asp Ala Lys  
                     65                    70                    75                    80  
 Asn Pro Asp Ser Leu Asn Ala Phe Val Lys Glu Val Gly Thr His Tyr  
                     85                    90                    95  
 Val Ala Ser Val Thr Tyr Gly Gly Ile Gly Phe Gln Val Leu Lys Met  
                     100                    105                    110  
 Ser Tyr Leu Gln Val Glu Glu Leu Glu Lys Glu Lys Ile Ser Ile Ser  
                     115                    120                    125  
 Val Ala Ala Ala Ser Ser Leu Leu Lys Ser Lys Thr Ser Asn Ala Thr  
                     130                    135                    140  
 Glu Lys Gly Tyr Ser Ser Tyr Gln Ser Glu Ser Ser Ala Gln Thr Val  
   145                    150                    155                    160  
 Phe Leu Gly Gly Thr Val Leu Pro Asp Leu Gln Gln Asp Lys Leu Asp  
                     165                    170                    175  
 Phe Lys Asp Trp Ser Glu Ser Ile Pro Asn Glu Pro Ile Pro Leu Ala  
                     180                    185                    190  
 Ile Ser Val Ser Ser Ile Thr Asp Leu Ile Ile Pro Glu Leu Phe Pro  
                     195                    200                    205  
 Ser Glu Asp Ala Gln Val Leu Ser Gln Lys Lys Ser Ala Leu Gly Gln  
                     210                    215                    220  
 Val Ile Leu Asn Tyr Leu Glu Ser His Lys Pro Lys Glu Glu Gly Pro  
   225                    230                    235                    240  
 Lys Pro Val Gln Ile Thr Ser Gly Phe Asn Ser Ser Ser Ser Val Phe  
                     245                    250                    255  
 Thr Leu Gln Ala Ala Lys Ala Pro Lys Thr Val Ser Phe Pro Tyr Ile  
                     260                    265                    270  
 Asp Tyr Trp Ser Thr Ile Pro Tyr Leu Phe Pro Thr Leu Lys Glu Thr  
                     275                    280                    285  
 Ser Gly Ala Gln Pro Leu Ser Phe Tyr Leu Arg Phe Asp Asp Ile Phe  
                     290                    295                    300  
 Glu Gln Gln Asn Leu Val His Asn Thr Ser Tyr Ile Leu Ala Ser Thr  
   305                    310                    315                    320  
 Ser Val Arg Leu Gly Tyr Phe Gly Asp Ser Tyr Arg Asp Tyr Asp Ala  
                     325                    330                    335  
 Leu Ser Phe Tyr Gly Ser Trp Pro Gln Ala Tyr Phe Asp Trp Ala Gly  
                     340                    345                    350  
 Tyr Lys Asp Arg Cys Thr Trp Thr Leu Glu Lys Leu Asn Thr Thr Gly  
                     355                    360                    365  
 Asp Leu Phe Ile Arg Ser Gly Asp Glu Ile Arg Leu Lys His Asn Thr  
                     370                    375                    380  
 Ser Gly Lys Tyr Leu Ala Thr Thr Ser Met Ser Asp Gly Tyr Gln Thr  
   385                    390                    395                    400  
 Leu Thr Cys Thr Thr Gln Thr Ser Asp Ser Val Phe Ile Ile Thr Val

405

410

415

&lt;210&gt;194

&lt;211&gt;303

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;194

Val Gly Gln Lys Arg Ala Asn Xaa Ser Lys Phe Ile Phe Leu Ile Ser  
 1 5 10 15  
 Glu Glu Ser Met Lys Gln Pro Met Ser Leu Ile Phe Ser Ser Val Cys  
 20 25 30  
 Leu Gly Leu Gly Leu Gly Ser Leu Ser Ser Cys Asn Gln Lys Pro Ser  
 35 40 45  
 Trp Asn Tyr His Asn Thr Ser Thr Ser Glu Glu Phe Phe Val His Gly  
 50 55 60  
 Asn Lys Ser Val Ser Gln Leu Pro His Tyr Pro Ser Ala Phe Arg Thr  
 65 70 75 80  
 Thr Gln Ile Phe Ser Glu Glu His Asn Asp Pro Tyr Val Val Ala Lys  
 85 90 95  
 Thr Asp Glu Glu Ser Arg Lys Ile Trp Arg Glu Ile His Lys Asn Leu  
 100 105 110  
 Lys Ile Lys Gly Ser Tyr Ile Pro Ile Ser Thr Tyr Gly Ser Leu Met  
 115 120 125  
 His Pro Lys Ser Ala Ala Leu Thr Leu Lys Thr Tyr Arg Pro His Pro  
 130 135 140  
 Ile Trp Ile Asn Gly Tyr Glu Arg Ser Phe Asn Ile Asp Thr Gly Lys  
 145 150 155 160  
 Tyr Leu Lys Asn Gly Ser Arg Arg Arg Thr Ser His Asp Gly Pro Lys  
 165 170 175  
 Asn Arg Ala Val Leu Asn Leu Ile Lys Ser Ser Gly Arg Arg Cys Asn  
 180 185 190  
 Ala Ile Gly Leu Glu Met Thr Glu Glu Asp Phe Val Ile Ala Arg Arg  
 195 200 205  
 Arg Glu Gly Val Tyr Ser Leu Tyr Pro Val Glu Val Cys Ser Tyr Pro  
 210 215 220  
 Gln Gly Asn Pro Phe Val Ile Ala Tyr Ala Trp Ile Ala Asp Glu Ser  
 225 230 235 240  
 Ala Cys Ser Lys Glu Val Leu Pro Val Lys Gly Tyr Tyr Ser Leu Val  
 245 250 255  
 Trp Glu Ser Val Ser Ser Ser Asp Ser Leu Asn Ala Phe Gly Asp Ser  
 260 265 270  
 Phe Ala Glu Asp Tyr Leu Arg Ser Thr Phe Leu Ala Asn Gly Thr Ser  
 275 280 285  
 Ile Leu Cys Val His Glu Ser Tyr Lys Lys Val Pro Pro Gln Pro  
 290 295 300

&lt;210&gt;195

&lt;211&gt;88

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;195

Val Lys Glu Tyr Leu Asp Phe Leu Val Gln Arg Asn Val Glu Arg Asp  
 1 5 10 15  
 Pro Gln Thr Lys Arg His Cys Thr Val Ser Gln Lys Phe Gly Gly Glu  
 20 25 30  
 Ser Ile Asp Ala Lys Thr Thr Thr Gly Gln Leu Phe His Ile Ala Gly  
 35 40 45  
 Lys Thr Glu Pro Gly His Gly Lys Leu Cys Leu Gly Glu Ser Ile Leu  
 50 55 60  
 Lys Gln Leu Leu Ala Leu Gly Ile Ile Thr Gly Tyr Glu Asn Arg Glu  
 65 70 75 80  
 Arg Glu Val Trp Val Tyr Leu Asp  
 85

&lt;210&gt;196

&lt;211&gt;203

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae.

&lt;400&gt;196

Thr Ser Leu His Lys Ile Leu Asp Cys Lys Tyr Lys Pro Val Phe Ile  
 1 5 10 15  
 Gln Asn Thr Val Ala Ser Glu Thr Tyr Pro Ser Gln Ile Leu His Ala  
 20 25 30  
 Gln Arg Glu Val Arg Asp Ala Tyr Phe Asn Gln Ala Asp Cys His Pro  
 35 40 45  
 Ala Arg Ala Asn Gln Ile Leu Glu Ala Lys Lys Ile Cys Leu Leu Asp  
 50 55 60  
 Val Tyr His Thr Asn His Tyr Ser Val Phe Thr Phe Cys Val Asp Asn  
 65 70 75 80  
 Tyr Pro Asn Leu Arg Phe Thr Phe Val Ser Ser Lys Asn Asn Glu Met  
 85 90 95  
 Asn Gly Leu Ser Asn Pro Leu Asp Asn Val Leu Val Glu Ala Met Val  
 100 105 110  
 Arg Arg Thr His Ala Arg Asn Leu Leu Ala Ala Cys Lys Ile Arg Asn  
 115 120 125  
 Ile Glu Val Pro Arg Val Val Gly Leu Asp Leu Arg Ser Gly Ile Leu  
 130 135 140  
 Ile Ser Lys Leu Glu Leu Lys Gln Pro Gln Phe Gln Ser Leu Thr Glu  
 145 150 155 160  
 Asp Phe Val Asn His Ser Thr Asn Gln Glu Glu Ala Arg Val His Gln  
 165 170 175  
 Lys His Val Leu Leu Ile Ser Leu Ile Leu Leu Cys Lys Gln Ala Ala  
 180 185 190  
 Leu Glu Ser Phe Gln Glu Lys Lys Arg Ser Ser  
 195 200

&lt;210&gt;197

&lt;211&gt;454

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;197

Met Lys Lys Val Leu Ile Ala Asn Arg Gly Glu Ile Ala Val Arg Ile  
 1 5 10 15  
 Ile Arg Ala Cys His Asp Leu Gly Leu Ser Thr Val Ala Val Tyr Ser  
 20 25 30  
 Leu Ala Asp Gln Glu Ala Leu His Val Leu Leu Ala Asp Glu Ala Ile  
 35 40 45  
 Cys Ile Gly Glu Pro Gln Ala Ala Lys Ser Tyr Leu Lys Ile Ser Asn  
 50 55 60  
 Ile Leu Ala Ala Cys Glu Ile Thr Gly Ala Asp Ala Val His Pro Gly  
 65 70 75 80  
 Tyr Gly Phe Leu Ser Glu Asn Ala Asn Phe Ala Ser Ile Cys Glu Ser  
 85 90 95  
 Cys Gly Leu Thr Phe Ile Gly Pro Ser Ser Glu Ser Ile Ala Met Met  
 100 105 110  
 Gly Asp Lys Ile Ala Ala Lys Ser Leu Ala Lys Lys Ile Lys Cys Pro  
 115 120 125  
 Val Ile Pro Gly Ser Glu Gly Ile Ile Glu Asp Glu Ser Glu Gly Leu  
 130 135 140  
 Lys Ile Ala Glu Lys Ile Gly Phe Pro Ile Val Ile Lys Ala Val Ala  
 145 150 155 160  
 Gly Gly Gly Gly Arg Gly Ile Arg Ile Val Lys Glu Lys Asp Glu Phe  
 165 170 175  
 Tyr Arg Ala Phe Ser Ala Ala Arg Ala Glu Ala Glu Ala Gly Phe Asn  
 180 185 190  
 Asn Pro Asn Val Tyr Ile Glu Lys Phe Ile Glu Asn Pro Arg His Leu  
 195 200 205  
 Glu Ile Gln Val Ile Gly Asp Thr His Gly Asn Tyr Val His Leu Gly  
 210 215 220  
 Glu Arg Asp Cys Thr Ile Gln Arg Arg Arg Gln Lys Leu Ile Glu Glu  
 225 230 235 240  
 Thr Pro Ser Pro Ile Leu Asn Ala Glu Ile Arg Val Lys Val Gly Lys

245 250 255  
 Val Ala Val Asp Leu Ala Arg Ser Ala Gly Tyr Phe Ser Val Gly Thr  
 260 265 270  
 Val Glu Phe Leu Leu Asp Lys Asp Lys Lys Phe Tyr Phe Met Glu Met  
 275 280 285  
 Asn Thr Arg Ile Gln Val Glu His Thr Ile Thr Glu Glu Val Thr Gly  
 290 295 300  
 Ile Asp Leu Val Lys Glu Gln Ile His Val Ala Met Gly Asn Lys Leu  
 305 310 315 320  
 Pro Trp Lys Gln Lys Asn Ile Glu Phe Ser Gly His Ile Ile Gln Cys  
 325 330 335  
 Arg Ile Asn Ala Glu Asp Pro Thr Asn Asn Phe Ser Pro Ser Pro Gly  
 340 345 350  
 Arg Leu Asp Tyr Tyr Leu Pro Pro Ala Gly Pro Ser Ile Arg Val Asp  
 355 360 365  
 Gly Ala Cys Tyr Ser Gly Tyr Ala Ile Pro Pro Tyr Tyr Asp Ser Met  
 370 375 380  
 Ile Ala Lys Val Ile Ala Lys Gly Lys Asn Arg Glu Glu Ala Ile Ala  
 385 390 395 400  
 Ile Met Lys Arg Ala Leu Lys Glu Phe His Ile Gly Gly Val Gln Ser  
 405 410 415  
 Thr Ile Pro Phe His Gln Phe Met Leu Asp Asn Pro Lys Phe Leu Glu  
 420 425 430  
 Ser Asn Tyr Asp Ile Asn Tyr Ile Asp Asn Leu Leu Ala Gln Gly Asn  
 435 440 445  
 Ser Phe Phe Lys Glu Phe  
 450

&lt;210&gt;198

&lt;211&gt;167

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;198

Met Asp Leu Lys Gln Ile Glu Lys Leu Met Ile Ala Met Gly Arg Asn  
 1 5 10 15  
 Gly Met Lys Arg Phe Ala Ile Lys Arg Glu Gly Leu Glu Leu Glu Leu  
 20 25 30  
 Glu Arg Asp Thr Arg Glu Gly Asn Arg Gln Glu Pro Val Phe Tyr Asp  
 35 40 45  
 Ser Arg Leu Phe Ser Gly Phe Ser Gln Glu Arg Pro Ile Pro Thr Asp  
 50 55 60  
 Pro Lys Lys Asp Thr Ile Lys Glu Thr Thr Thr Glu Asn Ser Glu Thr  
 65 70 75 80  
 Ser Thr Thr Thr Ser Ser Gly Asp Phe Ile Ser Ser Pro Leu Val Gly  
 85 90 95  
 Thr Phe Tyr Gly Ser Pro Ala Pro Asp Ser Pro Ser Phe Val Lys Pro  
 100 105 110  
 Gly Asp Ile Val Ser Glu Asp Thr Ile Val Cys Ile Val Glu Ala Met  
 115 120 125  
 Lys Val Met Asn Glu Val Lys Ala Gly Met Ser Gly Arg Val Leu Glu  
 130 135 140  
 Val Leu Ile Thr Asn Gly Asp Pro Val Gln Phe Gly Ser Lys Leu Phe  
 145 150 155 160  
 Arg Ile Ala Lys Asp Ala Ser  
 165

&lt;210&gt;199

&lt;211&gt;185

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;199

Met Val Leu Ser Ser Gln Leu Ser Val Gly Met Phe Ile Ser Thr Lys  
 1 5 10 15  
 Asp Gly Leu Tyr Lys Val Thr Ser Val Ser Lys Val Ala Gly Pro Lys  
 20 25 30  
 Gly Glu Ser Phe Ile Lys Val Ala Leu Gln Ala Ala Asp Ser Asp Val

35 40 45  
 Val Ile Glu Arg Asn Phe Lys Ala Thr Gln Glu Val Lys Glu Ala Gln  
 50 55 60  
 Phe Glu Thr Arg Thr Leu Glu Tyr Leu Tyr Leu Glu Asp Glu Ser Tyr  
 65 70 75 80  
 Leu Phe Leu Asp Leu Gly Asn Tyr Glu Lys Leu Phe Ile Pro Gln Glu  
 85 90 95  
 Ile Met Lys Asp Asn Phe Leu Phe Leu Lys Ala Gly Val Thr Val Ser  
 100 105 110  
 Ala Met Val Tyr Asp Asn Val Val Phe Ser Val Glu Leu Pro His Phe  
 115 120 125  
 Leu Glu Leu Met Val Ser Lys Thr Asp Phe Pro Gly Asp Ser Leu Ser  
 130 135 140  
 Leu Ser Gly Gly Val Lys Lys Ala Leu Leu Glu Thr Gly Ile Glu Val  
 145 150 155 160  
 Met Val Pro Pro Phe Val Glu Ile Gly Asp Val Ile Lys Ile Asp Thr  
 165 170 175  
 Arg Thr Cys Glu Tyr Ile Gln Arg Val  
 180 185

&lt;210&gt;200

&lt;211&gt;229

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;200

Val Lys Lys Gln Glu Ser Val Leu Val Gly Pro Ser Ile Met Gly Ala  
 1 5 10 15  
 Asp Leu Thr Cys Leu Gly Val Glu Ala Lys Lys Leu Glu Gln Ala Gly  
 20 25 30  
 Ser Asp Phe Ile His Ile Asp Ile Met Asp Gly His Phe Val Pro Asn  
 35 40 45  
 Leu Thr Phe Gly Pro Gly Ile Ile Ala Ala Ile Asn Arg Ser Thr Asp  
 50 55 60  
 Leu Phe Leu Glu Val His Ala Met Ile Tyr Asn Pro Phe Glu Phe Ile  
 65 70 75 80  
 Glu Ser Phe Val Arg Ser Gly Ala Asp Arg Ile Ile Val His Phe Glu  
 85 90 95  
 Ala Ser Glu Asp Ile Lys Glu Leu Leu Ser Tyr Ile Lys Lys Cys Gly  
 100 105 110  
 Val Gln Ala Gly Leu Ala Phe Ser Pro Asp Thr Ser Ile Glu Phe Leu  
 115 120 125  
 Pro Ser Phe Leu Pro Phe Cys Asp Val Val Val Leu Met Ser Val Tyr  
 130 135 140  
 Pro Gly Phe Thr Gly Gln Ser Phe Leu Pro Asn Thr Ile Glu Lys Ile  
 145 150 155 160  
 Ala Phe Ala Arg His Ala Ile Lys Thr Leu Gly Leu Lys Asp Ser Cys  
 165 170 175  
 Leu Ile Glu Val Asp Gly Gly Ile Asp Gln Gln Ser Ala Pro Leu Cys  
 180 185 190  
 Arg Asp Ala Gly Ala Asp Ile Leu Val Thr Ala Ser Tyr Leu Phe Glu  
 195 200 205  
 Ala Asp Ser Leu Ala Met Glu Asp Lys Ile Leu Leu Arg Gly Glu  
 210 215 220  
 Asn Tyr Gly Val Lys  
 225

&lt;210&gt;201

&lt;211&gt;397

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;201

Pro Ile Lys Asp Lys Ile Leu Met Ser Ser Pro Val Asn Asn Thr Pro  
 1 5 10 15  
 Ser Ala Pro Asn Ile Pro Ile Pro Ala Pro Thr Thr Pro Gly Ile Pro  
 20 25 30  
 Thr Thr Lys Pro Arg Ser Ser Phe Ile Glu Lys Val Ile Ile Val Ala



35 40 45  
 Lys Tyr Ile Leu Phe Ala Ile Ala Ala Thr Ser Gly Ala Leu Gly Thr  
 50 55 60  
 Ile Leu Gly Leu Ser Gly Ala Leu Thr Pro Gly Ile Gly Ile Ala Leu  
 65 70 75 80  
 Leu Val Ile Phe Phe Val Ser Met Val Leu Leu Gly Leu Ile Leu Lys  
 85 90 95  
 Asp Ser Ile Ser Gly Gly Glu Glu Arg Arg Leu Arg Glu Glu Val Ser  
 100 105 110  
 Arg Phe Thr Ser Glu Asn Gln Arg Leu Thr Val Ile Thr Thr Thr Leu  
 115 120 125  
 Glu Thr Glu Val Lys Asp Leu Lys Ala Ala Lys Asp Gln Leu Thr Leu  
 130 135 140  
 Glu Ile Glu Ala Phe Arg Asn Glu Asn Gly Asn Leu Lys Thr Thr Ala  
 145 150 155 160  
 Glu Asp Leu Glu Glu Gln Val Ser Lys Leu Ser Glu Gln Leu Glu Ala  
 165 170 175  
 Leu Glu Arg Ile Asn Gln Leu Ile Gln Ala Asn Ala Gly Asp Ala Gln  
 180 185 190  
 Glu Ile Ser Ser Glu Leu Lys Lys Leu Ile Ser Gly Trp Asp Ser Lys  
 195 200 205  
 Val Val Glu Gln Ile Asn Thr Ser Ile Gln Ala Leu Lys Val Leu Leu  
 210 215 220  
 Gly Gln Glu Trp Val Gln Glu Ala Gln Thr His Val Lys Ala Met Gln  
 225 230 235 240  
 Glu Gln Ile Gln Ala Leu Gln Ala Glu Ile Leu Gly Met His Asn Gln  
 245 250 255  
 Ser Thr Ala Leu Gln Lys Ser Val Glu Asn Leu Leu Val Gln Asp Gln  
 260 265 270  
 Ala Leu Thr Arg Val Val Gly Glu Leu Leu Glu Ser Glu Asn Lys Leu  
 275 280 285  
 Ser Gln Ala Cys Ser Ala Leu Arg Gln Glu Ile Glu Lys Leu Ala Gln  
 290 295 300  
 His Glu Thr Ser Leu Gln Gln Arg Ile Asp Ala Met Leu Ala Gln Glu  
 305 310 315 320  
 Gln Asn Leu Ala Glu Gln Val Thr Ala Leu Glu Lys Met Lys Gln Glu  
 325 330 335  
 Ala Gln Lys Ala Glu Ser Glu Phe Ile Ala Cys Val Arg Asp Arg Thr  
 340 345 350  
 Phe Gly Arg Arg Glu Thr Pro Pro Pro Thr Thr Pro Val Val Glu Gly  
 355 360 365  
 Asp Glu Ser Gln Glu Glu Asp Glu Gly Gly Thr Pro Pro Val Ser Gln  
 370 375 380  
 Pro Ser Ser Pro Val Asp Arg Ala Thr Gly Asp Gly Gln  
 385 390 395

&lt;210&gt;202

&lt;211&gt;118

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;202

Phe Ser Leu Val Asn Arg Glu Thr Ser Ser Leu Ser Leu Arg Ser Ser  
 1 5 10 15  
 Pro Pro Leu Ile Glu Ser Leu Arg Ile Lys Pro Lys Ser Thr Ile Glu  
 20 25 30  
 Thr Lys Lys Ile Thr Arg Arg Ala Ile Pro Ile Pro Gly Val Ser Ala  
 35 40 45  
 Pro Asp Arg Pro Arg Ile Val Pro Ser Ala Pro Asp Val Ala Ala Ile  
 50 55 60  
 Ala Asn Ser Met Tyr Leu Ala Thr Met Ile Thr Phe Ser Met Lys Leu  
 65 70 75 80  
 Glu Arg Gly Phe Val Val Gly Ile Pro Gly Val Val Gly Ala Gly Ile  
 85 90 95  
 Gly Met Phe Gly Ala Glu Gly Val Leu Phe Thr Gly Asp Asp Ile Arg  
 100 105 110

Ile Leu Ser Leu Ile Gly

115

<210>203

<211>217

<212>PRT

<213>Chlamydia pneumoniae

<400>203

Met His Ser Lys Phe Leu Ser Arg Arg Lys Lys Asn Ser Ser His Lys  
1 5 10 15  
Glu Glu Thr Ser Trp Asp Cys Ile Ala Ser Ser Tyr Asn Lys Ile Val  
20 25 30  
Gln Asp Lys Gly His Tyr Tyr His Arg Glu Thr Ile Leu Pro Gln Leu  
35 40 45  
Leu Pro Ser Leu Thr Leu Gly Ser Lys Ser Ser Val Leu Asp Ile Gly  
50 55 60  
Cys Gly Gln Gly Phe Leu Glu Arg Ala Leu Pro Lys Glu Cys Arg Tyr  
65 70 75 80  
Leu Gly Ile Asp Ile Ser Ser Arg Leu Ile Ala Leu Ala Lys Lys Met  
85 90 95  
Arg Ser Val Asn Ser His Gln Phe Lys Val Ala Asp Leu Ser Lys Arg  
100 105 110  
Leu Glu Phe Val Glu Pro Thr Leu Phe Ser His Ala Val Ala Ile Leu  
115 120 125  
Ser Leu Gln Asn Met Glu Phe Pro Gly Glu Ala Ile Arg Asn Thr Ala  
130 135 140  
Thr Leu Leu Glu Pro Leu Gly Gln Phe Phe Ile Val Leu Asn His Pro  
145 150 155 160  
Cys Phe Arg Ile Pro Arg Ala Ser Ser Trp His Tyr Asp Glu Asn Lys  
165 170 175  
Lys Ser Tyr Leu Ser Ser Tyr Arg Ser Leu Ser Leu Pro Asn Glu Asn  
180 185 190  
Pro Asn His Gly Ser Pro Arg Thr Lys Arg Phe Ala Phe Tyr Pro Leu  
195 200 205  
Leu Ser Leu Ser Ser Lys Leu Leu Val  
210 215

<210>204

<211>437

<212>PRT

<213>Chlamydia pneumoniae

<400>204

Lys Thr Xaa Asn Ser Cys Ile Met Phe Arg Lys Leu Phe Pro Phe Ser  
1 5 10 15  
Lys Lys Lys Thr Gly Gln Lys Gln Arg Leu Arg Asn Asn Gly Leu Leu  
20 25 30  
Gln Ala Ile Ile Gln Ser Ile Lys Val Leu Leu His Asn Glu Ala Ser  
35 40 45  
Lys Glu Ala Cys Val Leu Ser Tyr Tyr Gly Leu Leu Thr Cys Val Pro  
50 55 60  
Ile Leu Val Phe Phe Leu Arg Leu Ser Gln His Leu Phe Thr Asn Leu  
65 70 75 80  
Asn Trp Lys Glu Trp Leu Ile Ile Lys Phe Pro Asp Tyr Lys Lys Pro  
85 90 95  
Ile Val Ala Ile Val Glu Ala Ala Tyr His Ala Thr Glu Ser Asn Ile  
100 105 110  
Gly Leu Val Leu Val Gly Ser Phe Phe Val Phe Cys Trp Ala Gly Ile  
115 120 125  
Leu Met Leu Leu Ser Leu Glu Asp Gly Leu Asn Lys Ile Phe Arg Thr  
130 135 140  
Ser Trp Thr Pro Ile Ser Leu Lys Arg Leu Val Ser Tyr Phe Val Ile  
145 150 155 160  
Thr Leu Val Ser Pro Met Ile Phe Ile Ile Val Cys Gly Ser Trp Ile  
165 170 175  
Tyr Ile Thr Gln Ile Met Pro Ile Gln Tyr Ala Lys Leu Phe Ser Leu  
180 185 190

Ser His Ser Met Thr Ala Leu Tyr Phe Ile Ser Arg Phe Val Pro Tyr  
 195 200 205  
 Leu Leu Leu Tyr Leu Ala Leu Phe Cys Cys Tyr Ala Phe Leu Pro Arg  
 210 215 220  
 Val Ala Ile Gln Lys Thr Ser Ala Leu Ile Ser Thr Leu Ile Ile Gly  
 225 230 235 240  
 Ser Val Trp Ile Val Phe Gln Lys Ala Phe Phe Ser Leu Gln Val Ser  
 245 250 255  
 Ile Phe Asn Tyr Ser Phe Thr Tyr Gly Ala Leu Val Ala Leu Pro Ser  
 260 265 270  
 Phe Leu Leu Leu Tyr Ile Tyr Thr Met Ile Tyr Leu Phe Gly Gly  
 275 280 285  
 Ala Leu Thr Phe Ile Ile Gln Asn Arg Gly Cys Thr Phe Ile Phe Leu  
 290 295 300  
 Gly Asp Lys Ile Leu Pro Ser Cys Tyr Leu Gln Leu Ile Thr Ser Thr  
 305 310 315 320  
 Tyr Ile Leu Ala Leu Thr Thr Arg Gln Phe Asn Glu Gly Leu Ser Pro  
 325 330 335  
 Leu Thr Ala Gln Phe Ile Ala Lys Gln Ser Lys Val Pro Ile Gly Glu  
 340 345 350  
 Val Ser Gln Cys Leu Asp Val Leu Glu Lys Glu Gly Phe Leu Phe Pro  
 355 360 365  
 Tyr Asn Asn Gly Tyr Gln Pro Val Phe Asn Phe Ser Glu Leu Thr Ile  
 370 375 380  
 Lys Asp Ile Ala Asp Lys Leu Leu His Arg Glu Ile Phe Lys Lys Phe  
 385 390 395 400  
 Asn Pro Asp Leu Gly Ile Thr Phe Ile Glu Asn Ser Phe Gln Asn Ile  
 405 410 415  
 Phe Asn Gln Ala Ser Lys Asn Lys Glu Asn Leu Thr Leu Ser Glu Ile  
 420 425 430  
 Ala Arg Arg Ile Lys  
 435

&lt;210&gt;205

&lt;211&gt;313

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;205

Ala Asn Gln Met Lys Arg Arg Ser Trp Leu Lys Ile Leu Gly Ile Cys  
 1 5 10 15  
 Leu Gly Ser Ser Ile Val Leu Gly Phe Leu Ile Phe Leu Pro Gln Leu  
 20 25 30  
 Leu Ser Thr Glu Ser Gly Lys Tyr Leu Val Phe Ser Leu Ile His Lys  
 35 40 45  
 Glu Ser Gly Leu Ser Cys Ser Ala Glu Glu Leu Lys Ile Ser Trp Phe  
 50 55 60  
 Gly Arg Gln Thr Ala Arg Lys Ile Lys Leu Thr Gly Glu Ala Lys Asp  
 65 70 75 80  
 Glu Val Xaa Ser Ala Glu Lys Phe Glu Leu Asp Gly Ser Leu Leu Arg  
 85 90 95  
 Leu Leu Ile Tyr Lys Lys Pro Lys Gly Ile Thr Leu Ser Gly Trp Ser  
 100 105 110  
 Leu Lys Ile Asn Glu Pro Ala Ser Ile Asp His Pro Ser Val Ser His  
 115 120 125  
 Leu Asp Pro Gly Ser Leu Leu Thr Tyr Leu Asn Asp Cys Lys Ile Ile  
 130 135 140  
 Ser Glu His Gly Phe Ile Thr Met Lys Thr Val Ser Gly Ser Ser Leu  
 145 150 155 160  
 Ser Val Ser Gly Xaa Tyr Leu Glu Xaa Ser Ser Glu Lys Phe Met Thr  
 165 170 175  
 Lys Cys Val Val Ser Glu Asp Gln Gln Ser Gly Asn Ile Phe Ile Glu  
 180 185 190  
 Ser Val Leu Ser Pro Asp Val Ser Ile Ser Ala Gln Phe Ser Ser Val  
 195 200 205  
 Pro Val Ala Phe Phe Lys Ile Phe Ile Ala Ser Pro Phe Trp Asp His

210 215 220  
 Leu Leu Ser Tyr Glu Asp Ile Ile Asn Leu Ser Ala Glu Ala Thr His  
 225 230 235 240  
 Thr Asn Asp Gly Lys Ile Ser Met Thr Ala Ser Gly Glu Gly Asn Gln  
 245 250 255  
 Ile Gln Met Lys Leu Gln Gly His Ile His Lys Ser Thr Phe Tyr Ile  
 260 265 270  
 Val Glu Gly Ser Ser Ser Phe Ile Glu Leu Lys Pro Glu Leu Ala Ser  
 275 280 285  
 Ala Leu Cys Asn Gln Ile Ile Pro Leu Ser Thr Pro Ile Thr Ser Lys  
 290 295 300  
 Gln Ile Xaa Cys Tyr Gly Leu Leu Cys  
 305 310

&lt;210&gt;206

&lt;211&gt;275

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;206

Asn Leu Asn Leu Ser Ser Pro Gln Leu Phe Ala Thr Arg Ser Phe Arg  
 1 5 10 15  
 Cys Pro His Pro Leu Leu Val Ser Lys Ser Xaa Ala Thr Val Ser Tyr  
 20 25 30  
 Ala Lys Ile Pro Leu Asp Ile Thr Lys Trp Lys His Ile Glu Ile Thr  
 35 40 45  
 Ser Gln Ala Gln Leu Pro Glu Val Ala Ile His Pro Lys Asp Pro Asn  
 50 55 60  
 Leu Ala Leu Gln Leu Arg Asp Thr Lys Leu Gly Ile Lys Lys Thr Glu  
 65 70 75 80  
 Lys Xaa Ser Asp Ile Arg Tyr Ser Ser Ser Thr Val Leu Gly Gly Ala  
 85 90 95  
 Ser Pro Ser His Leu Asn Gly Leu Ile Ser Ile Asp Asn Lys Lys His  
 100 105 110  
 Leu Thr Lys Phe Arg Leu Gln Gln Ala Gln Leu Pro His Thr Tyr Leu  
 115 120 125  
 Arg Ala Ile Phe Pro Gln Pro Phe Val Ile Asn Val Pro Leu Asp Val  
 130 135 140  
 Ala Tyr Tyr Ser Leu Asn Ile Glu Gly Thr Tyr Lys Asn Ala His Leu  
 145 150 155 160  
 Glu Ala Asp Ala Ile Leu Asp Asn Pro Leu Leu Lys Leu Ser Cys Ser  
 165 170 175  
 Met Ser Gly Ala Trp Lys Asn Phe Leu Phe Lys Gly Gln Gly Thr Tyr  
 180 185 190  
 His Phe Asn Lys Lys Trp Gln Glu Ile Leu Ser Pro His Phe Ser Tyr  
 195 200 205  
 Ala Glu Ala Arg Phe Ser Gly Lys Ala Gln Ile Thr Asp Thr Asn Leu  
 210 215 220  
 Phe Phe Pro Lys Phe Ser Gly Lys Ile Thr Ala Arg Glu Asn Glu Leu  
 225 230 235 240  
 Leu Ile His Ala Lys Phe Gly Ser Pro Asn Glu Pro Ile Lys Pro Glu  
 245 250 255  
 Thr Thr Ser Ile Leu Ile His Gly Gln Phe Cys Ser Leu Pro Thr Gln  
 260 265 270  
 Pro Ser Phe  
 275

&lt;210&gt;207

&lt;211&gt;231

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;207

Asn Leu Lys Leu Pro Leu Tyr Ser Ser Thr Asp Asn Phe Val Leu Cys  
 1 5 10 15  
 Gln Leu Ser Leu Val Ser Asn His Leu Ala Pro Phe His Leu Lys Lys  
 20 25 30  
 Leu Thr Phe Ser Phe His Thr Asp Gly Gly Lys Phe Val Thr Lys Gly

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      35      40      45
Asn Leu Gln Ala Leu Ile Glu Asn Pro Asp Tyr Pro Asp Leu Asn Asn
  50      55      60
Thr Arg Ile Leu Ile Pro Asp Leu Leu Leu Ser Leu Asp Glu Ser Ser
  65      70      75      80
Thr Ser Pro Ser Ser Lys Asp Leu Lys Ile Gln Gly Ser Gly Glu Ile
      85      90      95
Phe Ser Leu Pro Leu Asp Ser Ile Thr Lys Thr Tyr Gly Lys Gln Val
      100      105      110
Arg Leu Ser Pro Tyr Phe Gly Ser Ser Gly Asp Leu Asn Phe Val Val
      115      120      125
Asn Tyr Asn Pro Lys Asp Gln Asn Lys Leu Thr Leu Leu Ser Xaa Phe
      130      135      140
Lys Ser Glu Ala Leu Leu Gly Glu Leu Lys Leu Val Met Asp Phe Ser
      145      150      155      160
Met Lys Leu Ser Ser Gly Thr Gln Gly Thr Leu Gln Trp Glu Val Ser
      165      170      175
Pro Glu Arg Tyr Ala Ser Phe Phe Lys Asn Ala Ser Cys Ser Pro Thr
      180      185      190
Cys Leu Leu His Arg Thr Ala Asn Val Arg Leu Asp Ile Ser Lys Leu
      195      200      205
Ser Cys Pro Glu Glu Thr Lys Gly Leu Ser Cys Leu Thr Leu Leu Ala
      210      215      220
Ala Glu Asp Leu Lys Val His
      225      230
<210>208
<211>415
<212>PRT
<213>Chlamydia pneumoniae
<400>208
Asn Cys Lys Cys Thr Leu Arg His Leu Lys Thr Leu Leu Ser Arg Gly
  1      5      10      15
Asn Gln Arg Phe Ile Leu Ser His Ala Ser Cys Arg Arg Gly Leu Glu
      20      25      30
Gly Ser Leu Glu Ala Thr Pro Leu Ile Phe Tyr Asp Asn Val Ser Lys
      35      40      45
Glu Thr Phe Ile Ile Asn Asp Phe Xaa Gly Ser Leu Arg Ala Asn Asn
      50      55      60
Leu Asp Ala Lys Ile Glu Tyr Asp Leu Lys Gly Ser Cys Leu Ala Pro
      65      70      75      80
Arg Gln Asp Ser Lys Thr Leu Ala Glu Phe Ser Leu Glu Gly Gln Val
      85      90      95
Asp His Leu Phe Ser Pro Glu Ser Arg Glu Phe Lys Gln Thr Ala Asn
      100      105      110
Trp Ile His Ile Pro Ser Ser Phe Ile Ala Gly Ile Ile Pro Met Ser
      115      120      125
Pro Gly Leu Lys Ala Gln Ile Ser Ser Leu Ala Gly Pro Arg Ile Asn
      130      135      140
Val Ser Ile Lys Asn Ala Phe Arg Phe Gly Glu Gly Pro Val Asp Ile
      145      150      155      160
Met Val Asp Ser Glu Asn Leu Gln Ala Gln Ile Pro Leu Ile Leu Asn
      165      170      175
Glu Lys Ser Ile Leu Leu Arg Glu Asn Leu Thr Ala His Leu Ser Ile
      180      185      190
Asn Glu Asp Val Asn Lys Ala Phe Leu Gln Glu Phe Asn Pro Leu Leu
      195      200      205
Ala Gly Gly Ala Tyr Ser Gln Tyr Pro Val Thr Leu Glu Ile Asp Lys
      210      215      220
Gln Asn Phe Tyr Leu Pro Ile Arg Pro Tyr Ser Phe Glu Glu Phe Arg
      225      230      235      240
Ile Gln Ser Ala Thr Leu Asp Met Gly Lys Ile Ser Ile Ala Asn Thr
      245      250      255
Gly Thr Met Tyr Ala Leu Phe Gln Phe Leu Asp Ile Thr Asp Gln Lys
      260      265      270

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Gln Phe Val Glu Ser Trp Phe Thr Pro Ile Phe Phe Ser Val Gln Lys  
 275 280 285  
 Gly Ser Ile Ile Cys Lys Arg Leu Asp Ala Leu Ile Asp Arg Arg Ile  
 290 295 300  
 Arg Leu Ala Leu Trp Gly Lys Thr Asp Ile Ala His Asp Arg Leu Phe  
 305 310 315 320  
 Met Thr Leu Gly Ile Asp Pro Glu Val Ile Lys Lys Tyr Phe His Asn  
 325 330 335  
 Thr Ser Leu Lys Thr Lys Asn Phe Phe Leu Ile Lys Ile Arg Gly Ser  
 340 345 350  
 Ile Ser Ser Pro Glu Val Asp Trp Ser Ser Ala Tyr Ala Arg Ile Ala  
 355 360 365  
 Leu Leu Lys Ser Tyr Ser Leu Gly Asn Pro Phe Ser Ser Leu Ala Asp  
 370 375 380  
 Lys Leu Phe Ser Ser Leu Gly Asp Ser Thr Pro Pro Pro Thr Val His  
 385 390 395 400  
 Pro Phe Pro Trp Glu Lys Ser Asn Phe Asp Ser Ile Glu Asn Lys  
 405 410 415  
 <210>209  
 <211>458  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>209  
 Leu Leu Gly Ile Lys Leu Met Arg Lys Arg His Ser Phe Asp Ser Thr  
 1 5 10 15  
 Ser Thr Lys Lys Glu Ala Val Ser Lys Ala Ile Gln Lys Ile Ile Lys  
 20 25 30  
 Ile Met Glu Thr Thr Asp Pro Ser Leu Asn Val Glu Thr Pro Asn Ala  
 35 40 45  
 Glu Ile Glu Ser Ile Leu Gln Glu Ile Lys Glu Ile Lys Gln Lys Leu  
 50 55 60  
 Ser Lys Gln Ala Glu Asp Leu Gly Leu Leu Glu Lys Tyr Cys Ser Gln  
 65 70 75 80  
 Glu Thr Leu Ser Asn Leu Glu Asn Thr Asn Ala Ser Leu Lys Leu Ser  
 85 90 95  
 Ile Gly Ser Val Ile Glu Glu Leu Ala Ser Leu Lys Gln Leu Val Glu  
 100 105 110  
 Glu Ser Ile Glu Glu Ser Leu Gly Gln Gln Asp Gln Leu Ile Gln Ser  
 115 120 125  
 Val Leu Ile Glu Ile Ser Asp Lys Phe Leu Ser Ser Ile Gly Glu Thr  
 130 135 140  
 Leu Ser Gly Asn Leu Asp Met Asn Gln Asn Val Ile Gln Gly Leu Leu  
 145 150 155 160  
 Ile Lys Glu Asn Pro Glu Lys Ser Glu Ala Ala Ser Val Gly Tyr Val  
 165 170 175  
 Gln Thr Leu Leu Glu Pro Leu Ser Lys Arg Ile Gly Glu Thr His Lys  
 180 185 190  
 Lys Val Ala Thr His Asp Val Asn Ile Ser Ser Leu Gln Phe His Met  
 195 200 205  
 Met Ser Val Ala Gly Gly Arg Phe Arg Gly His Ile Asp Met Asn Gly  
 210 215 220  
 Tyr Arg Val Leu Gly Leu Gly Glu Pro Lys Asn Gly Glu Asp Ala Val  
 225 230 235 240  
 Ser Lys Asp Tyr Leu Glu Arg Tyr Val Ser Ser Gln Leu Thr Ile Asp  
 245 250 255  
 Lys Val Glu Asp Lys Pro Ile Thr Lys Pro Asn Lys Gly Lys Leu Leu  
 260 265 270  
 Tyr Ser Gln Gly Thr Ser Pro Lys Leu Glu Gly Pro Leu Pro Leu Gly  
 275 280 285  
 Leu Leu Thr Ser Gly Ile Ser Gly Phe Thr Trp Lys Ser Ala Ser Lys  
 290 295 300  
 Ser Asn Asp Gly Ser Phe Pro Phe Ser Ala Leu Arg His Lys Glu Thr  
 305 310 315 320  
 Glu Ser Asp Thr Asp Cys Phe Gln Ile Thr Ser Thr Thr Leu Ser Gly

325 330 335  
 Asn Gln Ala Gly Thr Tyr Thr Trp Ser Leu Ser Leu Lys Val Leu Val  
 340 345 350  
 Pro Ser Ile Phe Gln Ile Glu Lys Pro Glu Val Gln Leu Ser Leu Val  
 355 360 365  
 Tyr Ser Tyr Glu Asp Trp Leu Pro Ile Asp Asn Ile Phe Asn Met Ser  
 370 375 380  
 Gln Pro Arg Thr Ile Pro Leu Ala Leu Leu Gly Gln Thr Met Leu Ala  
 385 390 395 400  
 Gly Gln Lys Tyr Asp Ile Leu Glu Leu Ala Ala His Gln Thr Asn Gln  
 405 410 415  
 Thr Leu Met Ile Ser Pro Asn Cys Ser Arg Phe Ser Leu Gln Leu Lys  
 420 425 430  
 Gln Thr Asn Gln Phe Glu Asn Ser Pro Val Asp Phe Tyr Ile Val His  
 435 440 445  
 Ala Ala His Ser Cys His Trp Ser Gly Phe  
 450 455

&lt;210&gt;210

&lt;211&gt;226

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;210

Met Thr Ile Arg Val Arg Asn Leu Ala Tyr Ser Val Asn Lys Lys Lys  
 1 5 10 15  
 Ile Leu Asp Gly Val Thr Phe Ser Leu Glu Arg Gly His Ile Thr Leu  
 20 25 30  
 Phe Val Gly Lys Ser Gly Ser Gly Lys Thr Met Ile Leu Arg Ala Leu  
 35 40 45  
 Ala Gly Leu Val Gln Pro Thr Gln Gly Asp Ile Trp Ile Glu Gly Glu  
 50 55 60  
 Ala Pro Ala Leu Val Phe Gln Gln Pro Glu Leu Phe Ser His Met Thr  
 65 70 75 80  
 Val Leu Gly Asn Cys Thr His Pro Gln Ile His Ile Lys Gly Arg Ser  
 85 90 95  
 Thr Glu Glu Ala Arg Glu Lys Ala Phe Glu Leu Leu His Leu Leu Asp  
 100 105 110  
 Ile Glu Glu Val Ala Lys Asn Tyr Pro Asp Gln Leu Ser Gly Gly Gln  
 115 120 125  
 Lys Gln Arg Val Ala Ile Val Arg Ser Leu Cys Met Asp Lys His Thr  
 130 135 140  
 Leu Leu Phe Asp Glu Pro Thr Ser Ala Leu Asp Pro Phe Ala Thr Ala  
 145 150 155 160  
 Ser Phe Arg His Leu Leu Glu Thr Leu Arg Asp Gln Glu Leu Thr Val  
 165 170 175  
 Gly Leu Thr Thr His Asp Met Gln Phe Val His Ser Cys Leu Asp Arg  
 180 185 190  
 Ile Tyr Leu Ile Asp Gln Gly Thr Val Ala Gly Val Tyr Asp Lys Arg  
 195 200 205  
 Asp Gly Glu Leu Asp Ser Gly His Pro Leu Ser Lys Tyr Ile His Ser  
 210 215 220

Ala Gln

225

&lt;210&gt;211

&lt;211&gt;220

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;211

Glu Val Gly Val Asp His Trp Leu Ala Ile Ala Arg Leu Leu Leu Arg  
 1 5 10 15  
 Gly Cys Gly Tyr Thr Leu Cys Val Ser Gly Ile Gly Ile Leu Cys Gly  
 20 25 30  
 Ser Ile Leu Gly Leu Leu Ile Gly Thr Val Thr Ser Leu Tyr Phe Pro  
 35 40 45  
 Ser Lys Leu Thr Lys Leu Leu Ala Asn Ser Tyr Val Thr Val Ile Arg

50 55 60  
 Gly Thr Pro Leu Phe Ile Gln Ile Leu Ile Ile Tyr Phe Gly Leu Pro  
 65 70 75 80  
 Glu Val Leu Pro Ile Glu Pro Thr Pro Leu Val Ala Gly Ile Ile Ala  
 85 90 95  
 Leu Ser Met Asn Ser Ala Ala Tyr Leu Ala Glu Asn Ile Arg Gly Gly  
 100 105 110  
 Ile Asn Ser Leu Ser Ile Gly Gln Trp Glu Ser Ala Met Val Leu Gly  
 115 120 125  
 Tyr Lys Lys Tyr Gln Ile Phe Val Tyr Ile Ile Tyr Pro Gln Val Phe  
 130 135 140  
 Lys Asn Ile Leu Pro Ser Leu Thr Asn Glu Phe Val Ser Leu Ile Lys  
 145 150 155 160  
 Glu Ser Ser Ile Leu Met Val Val Gly Val Pro Glu Leu Thr Lys Val  
 165 170 175  
 Thr Lys Asp Ile Val Ser Arg Glu Leu Asn Pro Met Glu Met Tyr Leu  
 180 185 190  
 Ile Cys Ala Gly Leu Tyr Phe Leu Met Thr Thr Ser Phe Ser Cys Ile  
 195 200 205  
 Ser Arg Leu Ser Glu Lys Arg Arg Ser Tyr Asp Asn  
 210 215 220

&lt;210&gt;212

&lt;211&gt;147

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;212

Met Lys Lys Lys Val Thr Ile Asp Glu Ala Leu Lys Glu Ile Leu Arg  
 1 5 10 15  
 Leu Glu Gly Ala Ala Thr Gln Glu Glu Leu Cys Ala Lys Leu Leu Ala  
 20 25 30  
 Gln Gly Phe Ala Thr Thr Gln Ser Ser Val Ser Arg Trp Leu Arg Lys  
 35 40 45  
 Ile Gln Ala Val Lys Val Ala Gly Glu Arg Gly Ala Arg Tyr Ser Leu  
 50 55 60  
 Pro Ser Ser Thr Glu Lys Thr Thr Thr Arg His Leu Val Leu Ser Ile  
 65 70 75 80  
 Arg His Asn Ala Ser Leu Ile Val Ile Arg Thr Val Pro Gly Ser Ala  
 85 90 95  
 Ser Trp Ile Ala Ala Leu Leu Asp Gln Gly Leu Lys Asp Glu Ile Leu  
 100 105 110  
 Gly Thr Leu Ala Gly Asp Asp Thr Ile Phe Val Thr Pro Ile Asp Glu  
 115 120 125  
 Gly Arg Leu Pro Leu Leu Met Val Ser Ile Ala Asn Leu Leu Gln Val  
 130 135 140

Phe Leu Asp

145

&lt;210&gt;213

&lt;211&gt;344

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;213

Met Leu Thr Leu Gly Leu Glu Ser Ser Cys Asp Glu Thr Ala Cys Ala  
 1 5 10 15  
 Ile Val Asn Glu Asp Lys Gln Ile Leu Ala Asn Ile Ile Ala Ser Gln  
 20 25 30  
 Asp Ile His Ala Ser Tyr Gly Gly Val Val Pro Glu Leu Ala Ser Arg  
 35 40 45  
 Ala His Leu His Ile Phe Pro Gln Val Ile Asn Lys Ala Leu Gln Gln  
 50 55 60  
 Ala Asn Leu Leu Ile Glu Asp Met Asp Leu Ile Ala Val Thr Gln Thr  
 65 70 75 80  
 Pro Gly Leu Ile Gly Ser Leu Ser Val Gly Val His Phe Gly Lys Gly  
 85 90 95  
 Ile Ala Ile Gly Ala Lys Lys Ser Leu Ile Gly Val Asn His Val Glu



100 105 110  
 Ala His Leu Tyr Ala Ala Tyr Met Ala Ala Gln Asn Val Gln Phe Pro  
 115 120 125  
 Ala Leu Gly Leu Val Val Ser Gly Ala His Thr Ala Ala Phe Phe Ile  
 130 135 140  
 Glu Asn Pro Thr Ser Tyr Lys Leu Ile Gly Lys Thr Arg Asp Asp Ala  
 145 150 155 160  
 Ile Gly Glu Thr Phe Asp Lys Val Gly Arg Phe Leu Gly Leu Pro Tyr  
 165 170 175  
 Pro Ala Gly Pro Leu Ile Glu Lys Leu Ala Leu Glu Gly Ser Glu Asp  
 180 185 190  
 Ser Tyr Pro Phe Ser Pro Ala Lys Val Pro Asn Tyr Asp Phe Ser Phe  
 195 200 205  
 Ser Gly Leu Lys Thr Ala Val Leu Tyr Ala Ile Lys Gly Asn Asn Ser  
 210 215 220  
 Ser Pro Arg Ser Pro Ala Pro Glu Ile Ser Leu Glu Lys Gln Arg Asp  
 225 230 235 240  
 Ile Ala Ala Ser Phe Gln Lys Ala Ala Cys Thr Thr Ile Ala Gln Lys  
 245 250 255  
 Leu Pro Thr Ile Ile Lys Glu Phe Ser Cys Arg Ser Ile Leu Ile Gly  
 260 265 270  
 Gly Gly Val Ala Ile Asn Glu Tyr Phe Arg Ser Ala Ile Gln Thr Ala  
 275 280 285  
 Cys Asn Leu Pro Val Tyr Phe Pro Pro Ala Lys Leu Cys Ser Asp Asn  
 290 295 300  
 Ala Ala Met Ile Ala Gly Leu Gly Gly Glu Asn Phe Gln Lys Asn Ser  
 305 310 315 320  
 Ser Ile Pro Glu Ile Arg Ile Cys Ala Arg Tyr Gln Trp Glu Ser Val  
 325 330 335  
 Ser Pro Phe Ser Leu Ala Ser Pro  
 340

&lt;210&gt;214

&lt;211&gt;514

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;214

Met Arg Lys Ile Ser Val Gly Ile Cys Ile Thr Ile Leu Leu Ser Leu  
 1 5 10 15  
 Ser Val Val Leu Gln Gly Cys Lys Glu Ser Ser His Ser Ser Thr Ser  
 20 25 30  
 Arg Gly Glu Leu Ala Ile Asn Ile Arg Asp Glu Pro Arg Ser Leu Asp  
 35 40 45  
 Pro Arg Gln Val Arg Leu Leu Ser Glu Ile Ser Leu Val Lys His Ile  
 50 55 60  
 Tyr Glu Gly Leu Val Gln Glu Asn Asn Leu Ser Gly Asn Ile Glu Pro  
 65 70 75 80  
 Ala Leu Ala Glu Asp Tyr Ser Leu Ser Ser Asp Gly Leu Thr Tyr Thr  
 85 90 95  
 Phe Lys Leu Lys Ser Ala Phe Trp Ser Asn Gly Asp Pro Leu Thr Ala  
 100 105 110  
 Glu Asp Phe Ile Glu Ser Trp Lys Gln Val Ala Thr Gln Glu Val Ser  
 115 120 125  
 Gly Ile Tyr Ala Phe Ala Leu Asn Pro Ile Lys Asn Val Arg Lys Ile  
 130 135 140  
 Gln Glu Gly His Leu Ser Ile Asp His Phe Gly Val His Ser Pro Asn  
 145 150 155 160  
 Glu Ser Thr Leu Val Val Thr Leu Glu Ser Pro Thr Ser His Phe Leu  
 165 170 175  
 Lys Leu Leu Ala Leu Pro Val Phe Phe Pro Val His Lys Ser Gln Arg  
 180 185 190  
 Thr Leu Gln Ser Lys Ser Leu Pro Ile Ala Ser Gly Ala Phe Tyr Pro  
 195 200 205  
 Lys Asn Ile Lys Gln Lys Gln Trp Ile Lys Leu Ser Lys Asn Pro His  
 210 215 220

Tyr Tyr Asn Gln Ser Gln Val Glu Thr Lys Thr Ile Thr Ile His Phe  
 225 230 235 240  
 Ile Pro Asp Ala Asn Thr Ala Ala Lys Leu Phe Asn Gln Gly Lys Leu  
 245 250 255  
 Asn Trp Gln Gly Pro Pro Trp Gly Glu Arg Ile Pro Gln Glu Thr Leu  
 260 265 270  
 Ser Asn Leu Gln Ser Lys Gly His Leu His Ser Phe Asp Val Ala Gly  
 275 280 285  
 Thr Ser Trp Leu Thr Phe Asn Ile Asn Lys Phe Pro Leu Asn Asn Met  
 290 295 300  
 Lys Leu Arg Glu Ala Leu Ala Ser Ala Leu Asp Lys Glu Ala Leu Val  
 305 310 315 320  
 Ser Thr Ile Phe Leu Gly Arg Ala Lys Thr Ala Asp His Leu Leu Pro  
 325 330 335  
 Thr Asn Ile His Ser Tyr Pro Glu His Gln Lys Gln Glu Met Ala Gln  
 340 345 350  
 Arg Gln Ala Tyr Ala Lys Lys Leu Phe Lys Glu Ala Leu Glu Glu Leu  
 355 360 365  
 Gln Ile Thr Ala Lys Asp Leu Glu His Leu Asn Leu Ile Phe Pro Val  
 370 375 380  
 Ser Ser Ser Ala Ser Ser Leu Leu Val Gln Leu Ile Arg Glu Gln Trp  
 385 390 395 400  
 Lys Glu Ser Leu Gly Phe Ala Ile Pro Ile Val Gly Lys Glu Phe Ala  
 405 410 415  
 Leu Leu Gln Ala Asp Leu Ser Ser Gly Asn Phe Ser Leu Ala Thr Gly  
 420 425 430  
 Gly Trp Phe Ala Asp Phe Ala Asp Pro Met Ala Phe Leu Thr Ile Phe  
 435 440 445  
 Ala Tyr Pro Ser Gly Val Pro Tyr Ala Ile Asn His Lys Asp Phe  
 450 455 460  
 Leu Glu Ile Leu Gln Asn Ile Glu Gln Glu Gln Asp His Gln Lys Arg  
 465 470 475 480  
 Ser Glu Leu Val Ser Gln Ala Ser Leu Tyr Leu Glu Thr Phe His Ile  
 485 490 495  
 Ile Glu Pro Ile Tyr His Asp Ala Phe Gln Phe Ala Met Asn Lys Lys  
 500 505 510  
 Leu Ser

&lt;210&gt;215

&lt;211&gt;494

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;215

Lys Glu Met Pro Arg Ser Leu Asp Pro Gly Lys Thr Arg Leu Ile Ala  
 1 5 10 15  
 Asp Gln Thr Leu Met Arg His Leu Tyr Glu Gly Leu Val Glu Glu His  
 20 25 30  
 Ser Gln Asn Gly Glu Ile Lys Pro Ala Leu Ala Glu Ser Tyr Thr Ile  
 35 40 45  
 Ser Glu Asp Gly Thr Arg Tyr Thr Phe Lys Ile Lys Asn Ile Leu Trp  
 50 55 60  
 Ser Asn Gly Asp Pro Leu Thr Ala Gln Asp Phe Val Ser Ser Trp Lys  
 65 70 75 80  
 Glu Ile Leu Lys Glu Asp Ala Ser Ser Val Tyr Leu Tyr Ala Phe Leu  
 85 90 95  
 Pro Ile Lys Asn Ala Arg Ala Ile Phe Asp Asp Thr Glu Ser Pro Glu  
 100 105 110  
 Asn Leu Gly Val Arg Ala Leu Asp Lys Arg His Leu Glu Ile Gln Leu  
 115 120 125  
 Glu Thr Pro Cys Ala His Phe Leu His Phe Leu Thr Leu Pro Ile Phe  
 130 135 140  
 Phe Pro Val His Glu Thr Leu Arg Asn Tyr Ser Thr Ser Phe Glu Glu  
 145 150 155 160  
 Met Pro Ile Thr Cys Gly Ala Phe Arg Pro Val Ser Leu Glu Lys Gly

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Lys | Phe | Asp | Ser | Lys | Phe | Ile | Lys | Val | Ile | Phe | Lys | Met | Phe | Ser |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Arg | Trp | Ile | Thr | Leu | Phe | Leu | Leu | Phe | Ile | Ser | Leu | Thr | Gly | Cys | Ser |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ser | Tyr | Ser | Ser | Lys | His | Lys | Gln | Ser | Leu | Ile | Ile | Pro | Ile | His | Asp |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Asp | Pro | Val | Ala | Phe | Ser | Pro | Glu | Gln | Ala | Lys | Arg | Ala | Met | Asp | Leu |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ser | Ile | Ala | Gln | Leu | Leu | Phe | Asp | Gly | Leu | Thr | Arg | Glu | Thr | His | Arg |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Glu | Ser | Asn | Asp | Leu | Glu | Leu | Ala | Ile | Ala | Ser | Arg | Tyr | Thr | Val | Ser |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Glu | Asp | Phe | Cys | Ser | Tyr | Thr | Phe | Phe | Ile | Lys | Asp | Ser | Ala | Leu | Trp |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ser | Asp | Gly | Thr | Pro | Ile | Thr | Ser | Glu | Asp | Ile | Arg | Asn | Ala | Trp | Glu |
|     | 115 |     |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Tyr | Ala | Gln | Glu | Asn | Ser | Pro | His | Ile | Gln | Ile | Phe | Gln | Gly | Leu | Asn |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |

Phe Ser Thr Pro Ser Ser Asn Ala Ile Thr Ile His Leu Asp Ser Pro  
 145 150 155 160  
 Asn Pro Asp Phe Pro Lys Leu Leu Ala Phe Pro Ala Phe Ala Ile Phe  
 165 170 175  
 Lys Pro Glu Asn Pro Lys Leu Phe Ser Gly Pro Tyr Thr Leu Val Glu  
 180 185 190  
 Tyr Phe Pro Gly His Asn Ile His Leu Lys Lys Asn Pro Asn Tyr Tyr  
 195 200 205  
 Asp Tyr His Cys Val Ser Ile Asn Ser Ile Lys Leu Leu Ile Ile Pro  
 210 215 220  
 Asp Ile Tyr Thr Ala Ile His Leu Leu Asn Arg Gly Lys Val Asp Trp  
 225 230 235 240  
 Val Gly Gln Pro Trp His Gln Gly Ile Pro Trp Glu Leu His Lys Gln  
 245 250 255  
 Ser Gln Tyr His Tyr Tyr Thr Tyr Pro Val Glu Gly Ala Phe Trp Leu  
 260 265 270  
 Cys Leu Asn Thr Lys Ser Pro His Leu Asn Asp Leu Gln Asn Arg His  
 275 280 285  
 Arg Leu Ala Thr Cys Ile Asp Lys Arg Ser Ile Ile Glu Glu Ala Leu  
 290 295 300  
 Gln Gly Thr Gln Gln Pro Ala Glu Thr Leu Ser Arg Gly Ala Pro Gln  
 305 310 315 320  
 Pro Asn Gln Tyr Lys Lys Gln Lys Pro Leu Thr Pro Gln Glu Lys Leu  
 325 330 335  
 Val Leu Thr Tyr Pro Ser Asp Ile Leu Arg Cys Gln Arg Ile Ala Glu  
 340 345 350  
 Ile Leu Lys Glu Gln Trp Lys Ala Ala Gly Ile Asp Leu Ile Leu Glu  
 355 360 365  
 Gly Leu Glu Tyr His Leu Phe Val Asn Lys Arg Lys Val Gln Asp Tyr  
 370 375 380  
 Ala Ile Ala Thr Gln Thr Gly Val Ala Tyr Tyr Pro Gly Ala Asn Leu  
 385 390 395 400  
 Ile Ser Glu Glu Asp Lys Leu Leu Gln Asn Phe Glu Ile Ile Pro Ile  
 405 410 415  
 Tyr Tyr Leu Ser Tyr Asp Tyr Leu Thr Gln Asp Phe Ile Glu Gly Val  
 420 425 430  
 Ile Tyr Asn Ala Ser Gly Ala Val Asp Leu Lys Tyr Thr Tyr Phe Pro  
 435 440 445

&lt;210&gt;217

&lt;211&gt;534

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;217

Gln Ile Glu Tyr Tyr Ile Met Lys Met His Arg Leu Lys Pro Thr Leu  
 1 5 10 15  
 Lys Ser Leu Ile Pro Asn Leu Leu Phe Leu Leu Leu Thr Leu Ser Ser  
 20 25 30  
 Cys Ser Lys Gln Lys Gln Glu Pro Leu Gly Lys His Leu Val Ile Ala  
 35 40 45  
 Met Ser His Asp Leu Ala Asp Leu Asp Pro Arg Asn Ala Tyr Leu Ser  
 50 55 60  
 Arg Asp Ala Ser Leu Ala Lys Ala Leu Tyr Glu Gly Leu Thr Arg Glu  
 65 70 75 80  
 Thr Asp Gln Gly Ile Ala Leu Ala Leu Ala Glu Ser Tyr Thr Leu Ser  
 85 90 95  
 Lys Asp His Lys Val Tyr Thr Phe Lys Leu Arg Pro Ser Val Trp Ser  
 100 105 110  
 Asp Gly Thr Pro Leu Thr Ala Tyr Asp Phe Glu Lys Ser Ile Lys Gln  
 115 120 125  
 Leu Tyr Phe Glu Glu Phe Ser Pro Ser Ile His Thr Leu Leu Gly Val  
 130 135 140  
 Ile Lys Asn Ser Ser Ala Ile His Asn Ala Gln Lys Ser Leu Glu Thr  
 145 150 155 160  
 Leu Gly Ile Gln Ala Lys Asp Asp Leu Thr Leu Val Ile Thr Leu Glu

165 170 175  
 Gln Pro Phe Pro Tyr Phe Leu Thr Leu Ile Ala Arg Pro Val Phe Ser  
 180 185 190  
 Pro Val His His Thr Leu Arg Glu Ser Tyr Lys Lys Gly Thr Pro Pro  
 195 200 205  
 Ser Thr Tyr Ile Ser Asn Gly Pro Phe Val Leu Lys Lys His Xaa His  
 210 215 220  
 Gln Asn Tyr Leu Ile Leu Glu Lys Asn Pro His Tyr Tyr Asp His Glu  
 225 230 235 240  
 Ser Val Lys Leu Asp Arg Val Thr Leu Lys Ile Ile Pro Asp Ala Ser  
 245 250 255  
 Thr Ala Thr Lys Leu Phe Lys Ser Lys Ser Ile Asp Trp Ile Gly Ser  
 260 265 270  
 Pro Trp Ser Ala Pro Ile Ser Asn Glu Asp Gln Lys Val Leu Ser Gln  
 275 280 285  
 Glu Lys Ile Leu Thr Tyr Ser Val Ser Ser Thr Thr Leu Leu Ile Tyr  
 290 295 300  
 Asn Leu Gln Lys Pro Leu Ile Gln Asn Lys Ala Leu Arg Lys Ala Ile  
 305 310 315 320  
 Ala His Ala Ile Asp Arg Lys Ser Ile Leu Arg Leu Val Pro Ser Gly  
 325 330 335  
 Gln Glu Ala Val Thr Leu Val Pro Pro Asn Leu Ser Gln Leu Asn Leu  
 340 345 350  
 Gln Lys Glu Ile Ser Thr Glu Glu Arg Gln Thr Lys Ala Arg Ala Tyr  
 355 360 365  
 Phe Gln Glu Ala Lys Glu Thr Leu Ser Glu Lys Glu Leu Ala Glu Leu  
 370 375 380  
 Ser Ile Leu Tyr Pro Ile Asp Ser Ser Asn Ser Ser Ile Ile Ala Gln  
 385 390 395 400  
 Glu Ile Gln Arg Gln Leu Lys Asp Thr Leu Gly Leu Lys Ile Lys Ile  
 405 410 415  
 Gln Gly Met Glu Tyr His Cys Phe Leu Lys Lys Arg Arg Gln Gly Asp  
 420 425 430  
 Phe Phe Ile Ala Thr Gly Gly Trp Ile Ala Glu Tyr Val Ser Pro Val  
 435 440 445  
 Ala Phe Leu Ser Ile Leu Gly Asn Pro Arg Asp Leu Thr Gln Trp Arg  
 450 455 460  
 Asn Ser Asp Tyr Glu Lys Thr Leu Glu Lys Leu Tyr Leu Pro His Ala  
 465 470 475 480  
 Tyr Lys Glu Asn Leu Lys Arg Ala Glu Met Ile Ile Glu Glu Glu Thr  
 485 490 495  
 Pro Ile Ile Pro Leu Tyr His Gly Lys Tyr Ile Tyr Ala Ile His Pro  
 500 505 510  
 Lys Ile Gln Asn Thr Phe Gly Ser Leu Leu Gly His Thr Asp Leu Lys  
 515 520 525  
 Asn Ile Asp Ile Leu Ser  
 530  
 <210>218  
 <211>296  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>218  
 Leu Ser Leu Val Phe Ser Tyr Ile Lys Asn Arg Ile Leu Phe Asn Leu  
 1 5 10 15  
 Leu Ser Leu Trp Ile Val Leu Thr Leu Thr Phe Leu Val Met Lys Thr  
 20 25 30  
 Ile Pro Gly Asp Pro Phe Asn Asp Glu Gly Cys Asn Val Leu Ser Glu  
 35 40 45  
 Glu Val Leu Gln Thr Leu Lys Ser Arg Tyr Gly Leu Asp Lys Pro Leu  
 50 55 60  
 Tyr Gln Gln Tyr Thr Gln Tyr Leu His Ser Ile Ala Lys Leu Asp Phe  
 65 70 75 80  
 Gly Asn Ser Leu Val Tyr Lys Asp Arg Lys Val Thr Asn Ile Ile Ser  
 85 90 95

Thr Ala Phe Pro Ile Ser Ala Ile Leu Gly Leu Gln Ser Leu Phe Leu  
                     100                    105                    110  
 Ser Ile Gly Gly Gly Ile Ala Leu Gly Thr Ile Ala Ala Leu Lys Lys  
                     115                    120                    125  
 Lys Lys Gln Arg Arg Tyr Ile Leu Gly Ala Ser Ile Leu Gln Ile Ser  
                     130                    135                    140  
 Ile Pro Ala Phe Ile Phe Ala Thr Leu Leu Gln Tyr Val Phe Ala Val  
 145                    150                    155                    160  
 Lys Ile Pro Leu Leu Pro Ile Ala Cys Trp Gly Ser Phe Thr His Thr  
                     165                    170                    175  
 Ile Leu Pro Thr Leu Ala Leu Ala Val Thr Pro Met Ala Phe Ile Ile  
                     180                    185                    190  
 Gln Leu Thr Tyr Ser Ser Val Ser Ala Ala Leu Asn Lys Asp Tyr Val  
                     195                    200                    205  
 Leu Leu Ala Tyr Ala Lys Gly Leu Ser Pro Leu Lys Val Val Ile Lys  
                     210                    215                    220  
 His Ile Leu Pro Tyr Ala Ile Phe Pro Thr Ile Ser Tyr Ser Ala Phe  
 225                    230                    235                    240  
 Leu Thr Thr Thr Val Ile Thr Gly Thr Phe Ala Ile Glu Asn Ile Phe  
                     245                    250                    255  
 Cys Ile Pro Gly Leu Gly Lys Trp Phe Ile Cys Ser Ile Lys Gln Arg  
                     260                    265                    270  
 Asp Tyr Pro Val Ala Leu Gly Leu Ser Val Phe Tyr Gly Thr Tyr Leu  
                     275                    280                    285  
 Cys Ser Leu Leu Tyr Phe Leu Thr  
                     290                    295

&lt;210&gt;219

&lt;211&gt;284

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;219

Met Asp Asn Tyr Leu Leu Asn Ile Lys Asp Leu Thr Ile Thr Ser Thr  
                     1                    5                    10                    15  
 Asn Pro Lys Arg Thr Leu Ile Glu Asn Leu Ser Leu Gln Leu Lys Glu  
                     20                    25                    30  
 Asn Arg Asn Leu Ala Leu Val Gly Glu Ser Gly Ser Gly Lys Thr Thr  
                     35                    40                    45  
 Ile Thr Lys Ala Ile Leu Gly Phe Leu Pro Glu Asn Cys Leu Ile Lys  
                     50                    55                    60  
 Thr Gly Ser Ile Leu Phe Glu Asp Ile Asp Ile Thr Lys Leu Ser Pro  
                     65                    70                    75                    80  
 Lys Glu Leu His Lys Ile Arg Gly Gln Lys Ile Ala Thr Ile Leu Gln  
                     85                    90                    95  
 Asn Ala Met Gly Ser Leu Thr Pro Ser Met Arg Ile Gly Met Gln Ile  
                     100                    105                    110  
 Ile Glu Thr Leu Arg Gln His His Lys Met Asn Lys Glu Glu Ala Tyr  
                     115                    120                    125  
 Asn Lys Ala Met Gln Leu Leu Thr Asp Val Cys Ile Pro Asn Pro Lys  
                     130                    135                    140  
 Tyr Ser Phe Ser Gln Tyr Pro Phe Glu Leu Ser Gly Gly Met Arg Gln  
 145                    150                    155                    160  
 Arg Val Val Ile Ala Ile Ala Leu Ala Ser Gln Pro Lys Leu Ile Leu  
                     165                    170                    175  
 Ala Asp Glu Pro Thr Thr Ala Leu Asp Ser Met Ser Gln Ala Gln Val  
                     180                    185                    190  
 Leu Arg Ile Leu Arg Asn Ile Gln Gln Gln Lys Gln Ala Thr Ile Leu  
                     195                    200                    205  
 Leu Val Thr His Asn Leu Ser Leu Val Lys Glu Leu Cys Asn Asp Ile  
                     210                    215                    220  
 Cys Ile Ile Lys Asp Gly Lys Leu Ile Glu Thr Gly Thr Val Glu Glu  
 225                    230                    235                    240  
 Ile Phe Leu Ser Pro Lys His Pro Tyr Thr Leu Lys Leu Leu Asn Ala  
                     245                    250                    255  
 Val Ser Lys Ile Pro Ile Lys Lys Thr Ser Ser Pro Ile Leu Lys Asn

260 265 270  
 Lys Phe Gln Pro Leu Met Ser Met Gln Gly Gly Leu  
 275 280  
 <210>220  
 <211>293  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>220  
 Val Pro Thr Ser Asn Glu Tyr Ala Arg Trp Phe Met Thr Thr Leu Leu  
 1 5 10 15  
 Ser Ile Lys Asp Leu Ser Leu Thr Ile Arg Gly Lys Lys Ile Leu Asn  
 20 25 30  
 His Ile Asn Leu Asn Leu Ile Lys Gly Ser Tyr Leu Thr Ile Val Gly  
 35 40 45  
 Pro Ser Gly Ser Gly Lys Ser Ser Leu Ala Leu Thr Ile Leu Asp Leu  
 50 55 60  
 Leu Lys Pro Thr Thr Gly Thr Ile Thr Phe His Met Asp Pro Lys Ile  
 65 70 75 80  
 Pro Arg Ala Arg Lys Val Gln Val Ile Trp Gln Asp Ile Asp Ser Ser  
 85 90 95  
 Leu Asn Pro Cys Met Ser Ile Lys Gly Ile Ile Ser Glu Pro Leu Asn  
 100 105 110  
 Ile Ile Gly Thr Tyr Ser Lys Ala Glu Gln Asn Lys Glu Ile Tyr Asn  
 115 120 125  
 Val Leu Asp Leu Val Asn Leu Pro Lys Ser Val Leu His Leu Lys Pro  
 130 135 140  
 Tyr Lys Leu Ser Gly Gly Gln Lys Gln Arg Ile Ala Ile Ala Lys Ala  
 145 150 155 160  
 Leu Val Ser Lys Pro Glu Leu Leu Ile Cys Asp Glu Pro Leu Ser Ser  
 165 170 175  
 Leu Asp Thr Leu Asn Gln Ser Leu Ile Leu Asp Leu Phe Gln Thr Ile  
 180 185 190  
 Lys Lys Glu Tyr Gln Asn Thr Leu Leu Phe Ile Thr His Asp Met Ser  
 195 200 205  
 Ala Ala Tyr Tyr Ile Ala Asp Thr Ile Ala Val Met Asp Gln Gly Ser  
 210 215 220  
 Leu Val Glu His Ala Cys Arg Glu Lys Ile Phe Ser Thr Pro Lys His  
 225 230 235 240  
 Thr Thr Thr Gln Asp Leu Leu Asp Ala Ile Pro Ile Phe Ser Leu Ile  
 245 250 255  
 Ser Thr Glu Met Glu Pro Ser Glu Glu Tyr Glu Leu Gln Val Ala Ser  
 260 265 270  
 Lys Xaa Ile Asp Leu Glu Ile Thr Asn Ser Tyr Arg Lys Ile Arg Ile  
 275 280 285  
 Phe Asp Val Ser Gln  
 290  
 <210>221  
 <211>279  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>221  
 Ile Val Pro Leu Pro Gln Lys Asn Asn Lys Glu Thr Ser Cys Met Asn  
 1 5 10 15  
 Thr Tyr Thr Phe Ser Pro Thr Leu Gln Lys Ser Phe Ser Leu Phe Leu  
 20 25 30  
 Leu Glu Lys Leu Asp Ser Tyr Phe Phe Phe Gly Gly Thr Arg Thr Gln  
 35 40 45  
 Ile Leu Val Ile Thr Pro Thr Asn Ile Arg Leu Ala Ala Lys Lys Arg  
 50 55 60  
 Gly Cys Lys Val Ser Thr Ile Glu Lys Ile Ile Lys Ile Leu Ser Phe  
 65 70 75 80  
 Ile Leu Leu Pro Leu Val Ile Ile Ala Phe Ile Leu Arg Tyr Phe Leu  
 85 90 95  
 His Lys Lys Phe Asp Lys Gln Phe Leu Cys Ile Pro Lys Val Ile Ser

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      100      105      110
Asn Glu Asp Glu Ala Leu Leu Gly Ser Arg Pro Gln Ala Val Glu Lys
      115      120      125
Ala Val Arg Glu Ile Ser Pro Ala Phe Phe Ser Ile Pro Arg Lys Tyr
      130      135      140
Gln Leu Ile Arg Ile Asp Thr Pro Lys Asp Asp Ala Pro Ser Ile Leu
145      150      155      160
Phe Pro Ile Gly Ile Glu Ile Ile Leu Lys Asp Leu Cys Ile Asp Thr
      165      170      175
Leu Lys Gln Ser Asn Leu Phe Leu Lys Arg Glu Met Asp Phe Leu Gly
      180      185      190
His Pro Glu Glu Lys Ala Leu Phe Asp Ser Ile Cys Ser Ile Glu Lys
      195      200      205
Asp Gln Glu Trp Met Ser Leu Glu Ser Lys Lys Leu Leu Ile Thr His
210      215      220
Phe Leu Lys Tyr Leu Phe Val Ser Gly Ile Glu Gln Leu Asn Pro Gly
225      230      235      240
Phe Asn Pro Glu Asn Gly Arg Gly Tyr Phe Ser Glu Ile Ser Thr Ala
      245      250      255
Lys Ile His Phe His Gln His Gly Arg Tyr Gly Pro Ile Arg Ser Ser
      260      265      270
Gly Pro Ile Met Lys Glu Ile
275

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&lt;210&gt;222

&lt;211&gt;272

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;222

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Ile Val Asp Arg Arg Ser Pro Ala Cys Tyr Asp Ser Ile Asn Ser Asp
 1      5      10      15
Ala Ile Gly Val Ser Leu Leu Met Asp Ile Ser His Ile Leu Glu Asp
      20      25      30
Leu Ala Tyr Asp Glu Gly Ile Leu Pro Arg Glu Ala Ile Glu Ala Ala
35      40      45
Ile Val Lys Gln Met Gln Ile Thr Pro Tyr Leu Leu His Ile Leu His
50      55      60
Asp Ala Thr Gln Arg Val Pro Glu Ile Val Asn Asp Gly Ser Tyr Gln
65      70      75      80
Gly His Leu Tyr Ala Met Tyr Leu Leu Ala Gln Phe Arg Glu Ser Arg
      85      90      95
Ala Leu Pro Leu Ile Ile Lys Leu Phe Ala Phe Glu Asp Asp Thr Pro
100      105      110
His Ala Ile Ala Gly Asp Val Leu Thr Glu Asp Leu Pro Arg Ile Leu
115      120      125
Ala Ser Val Cys Asn Asp Asp Ser Leu Ile Lys Glu Leu Ile Glu Thr
130      135      140
Pro Lys Ile Asn Pro Tyr Val Lys Ala Ala Ala Ile Ser Gly Leu Val
145      150      155      160
Thr Leu Val Gly Ala Gly Lys Ile Pro Arg Asp Lys Val Ile Arg Xaa
      165      170      175
Phe Ala Glu Leu Leu Asn Tyr Arg Leu Glu Lys Gln Pro Ser Phe Ala
180      185      190
Trp Asp Asn Leu Ile Ala Gly Ile Cys Thr Leu Tyr Pro Gly Glu Leu
195      200      205
Phe Tyr Pro Ile Ser Lys Ala Phe Asp Gly Gly Leu Val Asp Thr Ser
210      215      220
Phe Ile Ser Met Glu Asp Val Glu Asn Ile Ile His Glu Glu Thr Val
225      230      235      240
Glu Ser Cys Ile His Thr Leu Cys Ser Ser Thr Glu Leu Ile Asn Asp
      245      250      255
Thr Leu Glu Glu Met Glu Lys Trp Leu Glu Asp Phe Pro Ile Glu Pro
260      265      270

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&lt;210&gt;223

&lt;211&gt;246



&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;223

Val Asn Lys Lys Lys Arg Phe Leu Ser Leu Leu Phe Leu Thr Ala Val  
 1 5 10 15  
 Leu Leu Gly Ile Trp Phe Ser Pro His Pro Ala Ser Ile Asn Ser Asn  
 20 25 30  
 Ala Trp Gln Leu Phe Ala Ile Phe Thr Thr Thr Ile Met Gly Ile Ile  
 35 40 45  
 Phe Gln Pro Val Pro Met Gly Ala Ile Ala Ile Ile Gly Ile Ser Thr  
 50 55 60  
 Leu Leu Leu Thr Gln Thr Leu Thr Leu Glu Gln Gly Leu Ser Gly Phe  
 65 70 75 80  
 His Asn Pro Ile Ala Trp Leu Val Phe Leu Ser Phe Ser Ile Ala Lys  
 85 90 95  
 Gly Ile Ile Lys Thr Gly Leu Gly Glu Arg Ile Ala Tyr Phe Phe Val  
 100 105 110  
 Ser Ala Leu Gly Lys Ser Pro Leu Gly Leu Ser Tyr Gly Leu Val Ile  
 115 120 125  
 Thr Asp Phe Phe Leu Ala Pro Ala Ile Pro Ser Val Thr Ala Arg Ala  
 130 135 140  
 Gly Gly Ile Leu Tyr Pro Val Val Thr Ser Leu Ser Asp Ser Phe Gly  
 145 150 155 160  
 Ser Ser Ala Glu Lys Gly Thr Gln Asp Leu Ile Gly Ser Phe Leu Ile  
 165 170 175  
 Lys Val Ala Tyr Gln Ser Ser Val Ile Thr Ser Ala Met Phe Leu Thr  
 180 185 190  
 Ala Met Ala Gly Asn Pro Leu Val Ala Ala Leu Ala Gly His Val Gly  
 195 200 205  
 Val Ser Leu Ser Trp Val Leu Trp Ala Lys Ala Ala Ile Ile Pro Gly  
 210 215 220  
 Leu Leu Ser Leu Phe Leu Met Pro Ile Ile Leu Tyr Lys Leu Tyr Pro  
 225 230 235 240  
 Pro Lys Asn His Ile Leu  
 245

&lt;210&gt;224

&lt;211&gt;123

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;224

Leu Ser Pro Arg Gly Leu Phe Pro Lys Ala Leu Thr Lys Lys Tyr Ala  
 1 5 10 15  
 Ile Arg Ser Pro Ser Pro Val Phe Met Ile Pro Phe Ala Ile Glu Lys  
 20 25 30  
 Glu Arg Lys Thr Asn His Ala Ile Gly Leu Trp Asn Pro Asp Asn Pro  
 35 40 45  
 Cys Ser Arg Val Asn Val Cys Val Ser Ser Ser Val Glu Ile Pro Ile  
 50 55 60  
 Met Ala Ile Ala Pro Met Gly Thr Gly Trp Lys Met Ile Pro Met Ile  
 65 70 75 80  
 Val Val Val Asn Ile Ala Lys Ser Cys Gln Ala Leu Glu Phe Ile Asp  
 85 90 95  
 Ala Gly Trp Gly Glu Asn Gln Met Pro Lys Ser Thr Ala Val Arg Lys  
 100 105 110  
 Arg Arg Asp Lys Lys Arg Phe Phe Leu Phe Thr  
 115 120

&lt;210&gt;225

&lt;211&gt;550

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;225

Met His Pro Leu Tyr Val Asp Leu Asp Thr Ile Ile Ser Ser Tyr Ser  
 1 5 10 15  
 Pro Pro Leu Pro Lys Glu Phe Gln Glu Ala Ala Ser Leu Ile Ala Val

488

530  
 Ile Pro Asp Thr Thr Tyr  
 545 550  
 <210>226  
 <211>322  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>226  
 Tyr Gln Lys Leu Trp Glu Arg Glu Arg Glu Tyr Phe Lys Thr Ile Arg  
 1 5 10 15  
 Glu Lys Glu His Ala Thr Ile Ser Thr Met Leu Val Glu Leu Glu Ala  
 20 25 30  
 Leu Lys Arg Glu Phe Ala His Leu Lys Asp Gln Lys Pro Thr Ser Asp  
 35 40 45  
 Gln Glu Ile Thr Ser Leu Tyr Gln Cys Leu Asp His Leu Glu Phe Val  
 50 55 60  
 Leu Leu Gly Leu Gly Gln Asp Lys Phe Leu Lys Ala Thr Glu Asp Glu  
 65 70 75 80  
 Asp Val Leu Phe Glu Ser Gln Lys Ala Ile Asp Ala Trp Asn Ala Leu  
 85 90 95  
 Leu Thr Lys Ala Arg Asp Val Leu Gly Leu Gly Asp Ile Gly Ala Ile  
 100 105 110  
 Tyr Gln Thr Ile Glu Phe Leu Gly Ala Tyr Leu Ser Lys Val Asn Arg  
 115 120 125  
 Arg Ala Phe Cys Ile Ala Ser Glu Ile His Phe Leu Lys Thr Ala Ile  
 130 135 140  
 Arg Asp Leu Asn Ala Tyr Tyr Leu Leu Asp Phe Arg Trp Pro Leu Cys  
 145 150 155 160  
 Lys Ile Glu Glu Phe Val Asp Trp Gly Asn Asp Cys Val Glu Ile Ala  
 165 170 175  
 Lys Arg Lys Leu Cys Thr Phe Glu Lys Glu Thr Lys Glu Leu Asn Glu  
 180 185 190  
 Ser Leu Leu Arg Glu Glu His Ala Met Glu Lys Cys Ser Ile Gln Asp  
 195 200 205  
 Leu Gln Arg Lys Leu Ser Asp Ile Ile Ile Glu Leu His Asp Val Ser  
 210 215 220  
 Leu Phe Cys Phe Ser Lys Thr Pro Ser Gln Glu Glu Tyr Gln Lys Asp  
 225 230 235 240  
 Cys Leu Tyr Gln Ser Arg Leu Arg Tyr Leu Leu Leu Leu Tyr Glu Tyr  
 245 250 255  
 Thr Leu Leu Cys Lys Thr Ser Thr Asp Phe Gln Glu Gln Ala Arg Ala  
 260 265 270  
 Lys Glu Glu Phe Ile Arg Glu Lys Phe Ser Leu Leu Glu Leu Glu Lys  
 275 280 285  
 Gly Ile Lys Gln Thr Lys Glu Leu Glu Phe Ala Ile Ala Lys Ser Lys  
 290 295 300  
 Leu Glu Arg Gly Cys Leu Val Met Arg Lys Tyr Glu Xaa Pro Leu Asn  
 305 310 315 320  
 Ile Val  
  
 <210>227  
 <211>101  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>227  
 Glu Cys Val Met Ser Tyr Pro Asp Ile Ser Asn Val Gln Ala Ser Ser  
 1 5 10 15  
 Ile Gln Ser Ala Leu Leu His Lys Thr Ser Asp Gln Ile Gln Gln Lys  
 20 25 30  
 Arg Cys Phe Lys Gln Ser Thr Phe Val Ile Leu Ala Val Ser Leu Val  
 35 40 45  
 Ile Ile Gly Ser Leu Phe Leu Leu Ala Gly Val Ala Ile Leu Thr Val  
 50 55 60  
 Phe Ser His Gly Val Leu Ser Leu Val Phe Gly Val Leu Gly Ile Val

490

&lt;400&gt;229

Arg Met Tyr Phe Ser His Val Ser Thr Val Val Val Val Ala Leu Phe  
 1 5 10 15  
 Ile Leu Gly Ile Phe Phe Leu Ser Gly Ser Leu Ala Phe Leu Val His  
 20 25 30  
 Thr Ser Cys Gly Val Leu Leu Gly Ala Ala Leu Pro Ile Leu Cys Ile  
 35 40 45  
 Gly Leu Val Leu Leu Ala Val Ala Leu Ile Val Phe Leu Cys His Lys  
 50 55 60  
 His Lys Thr Arg Gln Asp Leu Asp Tyr Tyr Asp Gln Asp Leu Asp Ser  
 65 70 75 80  
 Leu Val Ile His Lys Lys Glu Ile Pro Asn Asp Ile Ser Glu Leu Arg  
 85 90 95  
 Val Thr Phe Glu Lys Leu Gln Asn Leu Phe Gln Phe His Thr Lys Asp  
 100 105 110  
 Phe Ser Asp Leu Ser Gln Glu Leu Gln Gly Lys Phe Ile Asn Cys Met  
 115 120 125  
 Glu Lys Trp Leu Thr Leu Glu Asp Glu Val Thr Lys Phe Leu Ile Val  
 130 135 140  
 Arg Asp Arg Phe Leu Glu Thr Arg Arg Asn Phe Thr Thr Phe Gly Glu  
 145 150 155 160  
 Gln Val Lys Gly Ile Gln Ser Asn Ile Phe Asp Leu His Glu Glu Lys  
 165 170 175  
 Ser Ser Leu Tyr Leu Glu Leu Tyr Arg Leu Arg Lys Asp Leu Gln Val  
 180 185 190  
 Leu Leu Asn Phe Phe Leu Leu Pro Pro Gly Ile Leu Lys Val Asp Tyr  
 195 200 205  
 Asp Glu Ile Glu Ala Ile Lys Gly Leu Phe Ile Arg Leu Thr Ser Arg  
 210 215 220  
 Leu Asp Lys Leu Asp Val Lys Ala Gln Glu Arg Lys Lys Phe Ile Asn  
 225 230 235 240  
 Glu Met Ser Arg Glu Phe Lys Glu Val Glu Lys Ala Phe Asp Ile Val  
 245 250 255  
 Asp Arg Ala Thr Lys Lys Leu Met Asp Arg Ala Lys Lys Glu Ser Pro  
 260 265 270  
 Ala Arg Leu Phe Met Gly Arg Thr Glu Ser Leu Leu Glu Met Lys Lys  
 275 280 285  
 Asn Glu Glu Ala Leu Lys Asn Gln Gly Leu Asp Pro Glu Asn Leu Ser  
 290 295 300  
 His Pro Glu Leu Phe Ser Pro Tyr Gln Gln Leu Leu Ile Leu Asn Tyr  
 305 310 315 320  
 Leu Asn Ser Glu Ile Val Leu His His Tyr Glu Phe Leu Ile Ser Gly  
 325 330 335  
 Thr Val Thr Ser Gly Leu Thr Leu Glu Glu Cys Glu Asn Arg Met Arg  
 340 345 350  
 Ala Ala Ser Thr Gly Leu Asn Ala Leu Leu Val Arg Lys Leu Gln Phe  
 355 360 365  
 Arg Gly Ala Ile Lys Ser Ala Tyr Phe Glu Lys Leu Thr Glu Ile Glu  
 370 375 380  
 Lys Glu Leu Arg Ser Leu Gln Asp Val Ile Xaa Ser Leu Glu Leu Glu  
 385 390 395 400  
 Leu Ile His Lys Ile Lys Asp Ile Val Thr Glu Glu Thr  
 405 410

&lt;210&gt;230

&lt;211&gt;193

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;230

Ile Cys Phe Lys Arg Arg Lys Asp Arg Thr Gly Met Leu Ser Arg Gln  
 1 5 10 15  
 Lys Glu Ser Arg Glu Thr Gly Gly Val Ser Arg Ser Tyr Arg Arg Glu  
 20 25 30  
 Leu Leu Glu Val Leu Lys Thr Arg Leu Ser Val Glu Lys Glu Ile Gln  
 35 40 45

Leu Phe Glu Glu Val Val Ser Ala Phe Glu Glu Lys Leu Ala Ser Leu  
 50 55 60  
 His Arg Thr Val Phe Ser Glu Glu Glu Leu Gln Glu Ala Leu Asp Lys  
 65 70 75 80  
 Ala Lys Ala Glu Leu Leu Asp Ile Gln Val Arg Lys Ser Val Val Glu  
 85 90 95  
 Asp Leu Ser Cys Glu Pro Thr Leu Ile Gln Tyr His Leu Leu Arg Leu  
 100 105 110  
 Tyr Glu Val Gln Cys Arg Ile Val Glu Gln Phe Leu Thr Gln Thr Phe  
 115 120 125  
 Ser Ser Glu Gln Glu Lys Val Leu Glu Glu Tyr Glu Ala Leu Lys Ala  
 130 135 140  
 Arg Ile Arg Lys Thr Leu Arg Val Lys Leu Asp Gln Val Arg Ala Asn  
 145 150 155 160  
 Val Ala Phe Val Ala Ser Thr Thr Asp Leu Leu Ser Glu Ser Glu Ser  
 165 170 175  
 Leu Asp Gly Asn Asp Ser Val Phe Glu Asp Ala His Asp Asp Phe Leu  
 180 185 190  
 Asp

&lt;210&gt;231

&lt;211&gt;267

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;231

Leu Thr Ser Ser Lys Lys Gln Val Met Ser Ser Ala Ile Ala Arg Asp  
 1 5 10 15  
 Cys Phe Pro Ser Pro Ser Pro Gln Pro Ser Ser Thr Leu Gly Val His  
 20 25 30  
 Pro Pro Lys Tyr Lys Ser Leu Ile Leu Ser Val Ser Leu Ile Val Leu  
 35 40 45  
 Gly Val Leu Leu Leu Cys Val Gly Met Leu Leu Leu Val Asn Ala Ile  
 50 55 60  
 Phe Ser Phe Ser Val Leu Thr Val Gly Leu Gly Ala Gly Val Phe  
 65 70 75 80  
 Leu Gly Ser Leu Leu Leu Ile Leu Gly Leu Ile Phe Phe Val Ser Tyr  
 85 90 95  
 His Arg Lys Leu Ser Glu Ala Thr Arg Ser Leu Glu Gln Lys Ile Thr  
 100 105 110  
 Leu Glu Tyr Gln Pro Trp Ala Asp Leu Arg Lys Glu Leu Asn Glu Val  
 115 120 125  
 Gln Glu Trp Ser Asn Phe Leu Leu Asp Glu Trp Glu Asp Phe Lys Glu  
 130 135 140  
 Val Val Ala Gln His Lys Ser Gln Phe Ala Thr Phe Glu Gly Asp Leu  
 145 150 155 160  
 Leu Leu Phe Gly Arg Glu Val Glu Lys Tyr Glu Thr Ile Trp Lys Glu  
 165 170 175  
 Leu Asp Gly Arg Asp Val Ala Leu Leu Thr Glu Leu Lys Asn Ile Trp  
 180 185 190  
 Gly Pro Leu Glu Phe Leu Arg Lys Lys Gly Asp Arg Leu Gln Cys Glu  
 195 200 205  
 Ile Asp Lys Leu Arg Lys Glu Val Met Lys Val Gly Lys Ser Gly Leu  
 210 215 220  
 Lys Leu Ala Cys Glu Leu Thr Lys Phe Lys Ser Ala Leu Lys Asp Val  
 225 230 235 240  
 Lys Ile Glu Gln Glu Cys Tyr Arg Asp Lys Arg Lys Val Glu Lys Leu  
 245 250 255  
 Glu Val Phe Pro Glu Val Ile Gly Gly Asn Tyr  
 260 265

&lt;210&gt;232

&lt;211&gt;150

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;232

Asn Lys Ala Arg Thr Met Asn Pro Val Thr Phe Asp Arg Ile Gln Val  
 1 5 10 15  
 Asp Phe Ile Pro Glu Asp Thr Ser Leu Arg Ile Asn Ser Tyr Ile Val  
 20 25 30  
 Ala Gly Gly Leu Leu Ile Leu Gly Val Val Leu Ser Ile Leu Ser Val  
 35 40 45  
 Ile Cys Leu Asp Ile Gly Leu Val Gly Leu Ser Ala Gly Ala Ala Phe  
 50 55 60  
 Thr Leu Gly Leu Gly Cys Leu Ile Phe Ala Leu Phe Leu Phe Ser Phe  
 65 70 75 80  
 Ser Leu Ile Leu Leu Ser Gln Glu Lys Arg Val Pro Asp Val Leu  
 85 90 95  
 Ser Leu Tyr Leu Glu Lys Glu Val Pro Gln Tyr Glu Thr Pro Leu Tyr  
 100 105 110  
 Lys Glu Asp Leu Glu Ser Glu Arg Asp Met Ser Ala Ile Ser Glu Arg  
 115 120 125  
 Leu Gly Ile Ile Glu Glu Lys Leu Arg Ile Ala Glu Lys Phe Arg Tyr  
 130 135 140  
 Ser Asp Ser Val Phe Val  
 145 150

&lt;210&gt;233

&lt;211&gt;375

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;233

Gly Ser Ser Leu Ala Leu Lys Phe His Leu Ile His Gln Ser Lys Lys  
 1 5 10 15  
 Ser Gln Ala Arg Val Gly Gln Ile Glu Thr Ser His Gly Val Ile Asp  
 20 25 30  
 Thr Pro Ala Phe Val Pro Val Ala Thr His Gly Ala Leu Lys Gly Val  
 35 40 45  
 Ile Asp His Ser Asp Ile Pro Leu Leu Phe Cys Asn Thr Tyr His Leu  
 50 55 60  
 Leu Leu His Pro Gly Pro Glu Ala Val Ala Lys Leu Gly Gly Leu His  
 65 70 75 80  
 Gln Phe Met Gly Arg Gln Ala Pro Ile Ile Thr Asp Ser Gly Gly Phe  
 85 90 95  
 Gln Ile Phe Ser Leu Ala Tyr Gly Ser Val Ala Glu Glu Ile Lys Ser  
 100 105 110  
 Cys Gly Lys Lys Lys Gly Met Ser Ser Leu Val Lys Ile Thr Asp Glu  
 115 120 125  
 Gly Ala Trp Phe Lys Ser Tyr Arg Asp Gly Arg Lys Leu Phe Leu Ser  
 130 135 140  
 Pro Glu Leu Ser Val Gln Ala Gln Lys Asp Leu Gly Ala Asp Ile Ile  
 145 150 155 160  
 Ile Pro Leu Asp Glu Leu Leu Pro Phe His Thr Asp Gln Glu Tyr Phe  
 165 170 175  
 Leu Thr Ser Cys Ser Arg Thr Tyr Val Trp Glu Lys Arg Ser Leu Glu  
 180 185 190  
 Tyr His Arg Lys Asp Pro Arg His Gln Ser Met Tyr Gly Val Ile His  
 195 200 205  
 Gly Gly Leu Asp Pro Glu Gln Arg Arg Ile Gly Val Arg Phe Val Glu  
 210 215 220  
 Asp Glu Pro Phe Asp Gly Ser Ala Ile Gly Gly Ser Leu Gly Arg Asn  
 225 230 235 240  
 Leu Gln Glu Met Ser Glu Val Val Lys Ile Thr Thr Ser Phe Leu Ser  
 245 250 255  
 Lys Glu Arg Pro Val His Leu Leu Gly Ile Gly Asp Leu Pro Ser Ile  
 260 265 270  
 Tyr Ala Met Val Gly Phe Gly Ile Asp Ser Phe Asp Ser Ser Tyr Pro  
 275 280 285  
 Thr Lys Ala Ala Arg His Gly Leu Ile Leu Ser Lys Ala Gly Pro Ile  
 290 295 300  
 Lys Ile Gly Gln Gln Lys Tyr Ser Gln Asp Ser Ser Thr Ile Asp Pro

494



Ile Leu Gly Asn Ile Leu Gly Ala Gly Arg Leu Tyr Ser Val Trp Tyr  
 65 70 75 80  
 Thr Ser Asp Glu Asp Trp Lys Lys Gln Val Val  
 85 90

&lt;210&gt;237

&lt;211&gt;100

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;237

Arg Gly Met Leu Pro Ala Trp Val Thr Pro Gly Phe Leu Thr Lys Leu  
 1 5 10 15  
 Ala Glu Gly Leu Lys Ile Asn Ser Gly Arg Ser Val Asn Pro Lys Gly  
 20 25 30  
 Leu Glu Gln Cys Ile Ala Ser Gly Gln Tyr Asn Glu Gln Ile Lys Lys  
 35 40 45  
 Asn Asn Leu Tyr Gly Ser Gln Val Leu Gly Gly Gln Leu Ala Thr Pro  
 50 55 60  
 Thr Ala Val Val Gly Asp Tyr Leu Ile Glu Asp Pro Thr Phe His Glu  
 65 70 75 80  
 Ile Glu Arg Ala Ile Gln His Ile Arg Gln Leu Gln Ala Val Glu Gly  
 85 90 95  
 Asp His Asp Asp  
 100

&lt;210&gt;238

&lt;211&gt;140

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;238

Gln Ile Leu Phe Thr Ser Pro Leu Asn Lys Lys Xaa Leu Val Leu Cys  
 1 5 10 15  
 Thr Ala Met Phe Phe Ile Val Cys Phe Gly Phe Leu Ile His Lys Lys  
 20 25 30  
 His Thr Ile Leu Pro Pro Lys Ala His Ile Pro Thr Asn Ala Lys His  
 35 40 45  
 Phe Pro Thr Ile Gly Asn Pro Tyr Ala Pro Ile Asn Ile Thr Val Phe  
 50 55 60  
 Glu Glu Pro Ser Cys Ser Ala Cys Ala Glu Phe Thr Thr Glu Val Phe  
 65 70 75 80  
 Pro Leu Leu Lys Lys His Tyr Ile Asp Thr Gly Glu Ile Ser Phe Thr  
 85 90 95  
 Leu Ile Pro Val Cys Phe Ile Arg Gly Ser Lys Pro Ala Ala Gln Ala  
 100 105 110  
 Leu Leu Cys Ile Tyr His His Asp Ser Thr Ser Gly Arg Tyr Arg Arg  
 115 120 125  
 Leu Tyr Gly Ile Phe Pro Ser Tyr Phe Asp Leu Ser  
 130 135 140

&lt;210&gt;239

&lt;211&gt;154

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;239

Leu Phe Thr Tyr Phe Leu Ser Tyr Cys Phe Pro Asn Gln Thr Phe Ser  
 1 5 10 15  
 Ser Leu Val Arg Ser Pro Thr Arg His Leu Gly Tyr Pro Phe Arg Leu  
 20 25 30  
 Arg Cys Arg Arg Ser Pro Thr Ile Phe Ala Asn Asp Thr Leu Ile Gly  
 35 40 45  
 Phe Ala Ile Leu Ala Val Val Cys Ile Ser Pro Thr Arg Pro Glu Ala  
 50 55 60  
 Leu Glu Val Gly Pro Thr Leu Pro Glu Gly Phe Ser Tyr Asn Pro Ser  
 65 70 75 80  
 Ala Gly Gly Arg Arg Ala Ala Val Leu Phe Leu Ser Leu Leu Gly Trp  
 85 90 95  
 Leu Glu Ala Arg Tyr Leu Thr Ala Ser Ser Leu Gly Ile Thr Ser Ser

100 105 110  
 Gln Ser Ser Asn Phe Leu Leu Leu Tyr Ser Ser Ile Met Thr Val Tyr  
 115 120 125  
 Ser Leu Leu Val Val Leu Ser Leu Ala Gly Ser Glu Arg Arg Trp His  
 130 135 140  
 Thr Arg Pro Lys Ile Val Ile Ala Thr Ala  
 145 150  
 <210>240  
 <211>94  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>240  
 Leu Leu Ala Met Leu Cys Leu Thr Ile Glu Pro Ala Leu Ala Val Val  
 1 5 10 15  
 Phe Ala Tyr Asp Glu Thr Arg Ala Thr Leu Arg Tyr Ile Ser Gln Phe  
 20 25 30  
 Leu Gly Asp Lys Arg Ala Leu Thr Arg Ala Ser Phe Phe Gly Ser Glu  
 35 40 45  
 Tyr Tyr Lys His Thr Leu Ser Trp Glu Glu Arg Thr Val Arg Pro Leu  
 50 55 60  
 Arg Lys Ala Tyr Lys Gln Ala Phe Glu Gly Ile Ser Phe Pro Ile Asn  
 65 70 75 80  
 Gln Leu Leu Ala Ile Leu Val Ala Ser Phe Cys Lys Ser Gln  
 85 90  
 <210>241  
 <211>234  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>241  
 Arg Phe Lys Lys Ala Leu Ile Tyr Met Ser Ser Gln Pro Leu Val Thr  
 1 5 10 15  
 Thr Ser Ser Ser Leu Ser Arg Tyr Val Val Leu Thr Gly Glu Glu Lys  
 20 25 30  
 Val Ala Cys Tyr Lys Lys Ala Phe Asn His Ile Trp His Gly Ala Pro  
 35 40 45  
 Ala Ile Ile Leu Ala Ala Ala Leu Leu Met Phe Cys Ile Phe Gly Phe  
 50 55 60  
 Val Leu Gly Ser Ile Leu Leu Gly Ala Pro Leu Glu Gly Ala Ser Ile  
 65 70 75 80  
 Leu Tyr Asp Val Ile Leu Pro Trp Leu Leu Pro Ser Ile Leu Val Phe  
 85 90 95  
 Val Leu Leu Val Leu Pro Leu Asn Ile Tyr Ala Tyr Ser His His Lys  
 100 105 110  
 Gln Val Leu Ala Leu His Glu Arg Ile Thr Gln Ser Asn Tyr Lys Glu  
 115 120 125  
 Ile Tyr Asp His Cys Glu Lys Glu Lys Lys Thr Pro Asn Lys Lys Ala  
 130 135 140  
 Leu Ser Leu Tyr Ile Glu Ser Gln Val Leu Val Pro Glu Tyr Ser Lys  
 145 150 155 160  
 Arg Phe Ser Ser Met Ile Leu Gly Lys Thr Leu Lys Ile Ile Pro Lys  
 165 170 175  
 Lys Asp Ser Pro Glu Ser Leu Lys His Asp Glu Leu Ile Gln Lys Ala  
 180 185 190  
 Leu Glu Arg Ala Lys Glu Asn Ile Tyr Met Asn Lys Asn Gln Arg Glu  
 195 200 205  
 Lys Arg Asp Glu Arg Glu Ala Lys Lys Glu Ala Lys Asn Ala Ser Lys  
 210 215 220  
 Thr Asn Pro Leu Trp Glu Gly Leu Gly Thr  
 225 230  
 <210>242  
 <211>235  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>242

Met Leu Gln Ala His Arg Leu Cys Tyr Ser Cys Asp Asn Gln Val Ile  
 1 5 10 15  
 Leu Lys Asp Ala Ser Phe Gln Ala Ser Pro Gly Thr Ile Thr Ile Ile  
 20 25 30  
 Leu Gly Ser Ser Gly Val Gly Lys Thr Thr Leu Phe Arg Leu Leu Ala  
 35 40 45  
 Gly Phe Leu Pro Leu Gln Glu Gly Glu Leu Leu Trp Asn Gly Ser Pro  
 50 55 60  
 Leu Asn Arg Lys Asp Val Ala Tyr Met Gln Gln Lys Glu Ala Leu Leu  
 65 70 75 80  
 Pro Trp Arg Thr Ala Leu Lys Asn Met Thr Leu Ser Thr Glu Leu Gly  
 85 90 95  
 Ile Asn Thr Ser His Asn Ala Leu Ser Asn Glu Arg Leu Glu Glu Ile  
 100 105 110  
 Ile His Asn Phe Asp Leu Gly Gln Leu Leu Asp Arg Tyr Pro Asp Glu  
 115 120 125  
 Leu Ser Gly Gly Gln Arg Gln Arg Ile Ala Leu Ala Ala Gln Cys Leu  
 130 135 140  
 Ser Leu Lys Pro Ile Leu Leu Leu Asp Glu Pro Phe Ser Ser Leu Asp  
 145 150 155 160  
 Val Leu Leu Lys Glu Gln Leu Tyr Gln Asp Ile Val Ala Leu Ala Lys  
 165 170 175  
 Lys Glu Asn Lys Thr Val Leu Leu Val Thr His Asp Phe His Asp Val  
 180 185 190  
 Ser Cys Leu Gly Asp Val Leu Tyr Val Ile Lys Asn Lys Thr Leu Thr  
 195 200 205  
 Pro Val Pro Leu Asp Pro Ser Met Arg Pro Leu Asn Asn Gly Leu Cys  
 210 215 220  
 Phe Ile Lys Asp Leu Lys Lys His Leu Tyr Thr  
 225 230 235

&lt;210&gt;243

&lt;211&gt;301

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;243

Lys Lys Phe Leu Met Arg Arg Phe Leu Phe Leu Ile Leu Ser Ser Leu  
 1 5 10 15  
 Pro Leu Val Ala Phe Ser Ala Asp Asn Phe Thr Ile Leu Glu Glu Lys  
 20 25 30  
 Gln Ser Pro Leu Ser Arg Val Ser Ile Ile Phe Ala Leu Pro Gly Val  
 35 40 45  
 Thr Pro Val Ser Phe Asp Gly Asn Cys Ser Ile Pro Trp Phe Ser His  
 50 55 60  
 Ser Lys Lys Thr Leu Glu Gly Gln Arg Ile Tyr Tyr Ser Gly Asp Ser  
 65 70 75 80  
 Phe Gly Lys Tyr Phe Val Val Ser Ala Leu Trp Pro Asn Lys Val Ser  
 85 90 95  
 Ser Ala Val Val Ala Cys Asn Met Ile Leu Lys His Arg Val Asp Leu  
 100 105 110  
 Ile Leu Ile Ile Gly Ser Cys Tyr Ser Arg Ser Gln Asp Ser Arg Phe  
 115 120 125  
 Gly Ser Val Leu Val Ser Lys Gly Tyr Ile Asn Tyr Asp Ala Asp Val  
 130 135 140  
 Arg Pro Phe Phe Glu Arg Phe Glu Ile Pro Asp Ile Lys Lys Ser Val  
 145 150 155 160  
 Phe Ala Thr Ser Glu Val His Arg Glu Ala Ile Leu Arg Gly Gly Glu  
 165 170 175  
 Glu Phe Ile Ser Thr His Lys Gln Glu Ile Glu Glu Leu Leu Lys Thr  
 180 185 190  
 His Gly Tyr Leu Lys Ser Thr Thr Lys Thr Glu His Thr Leu Met Glu  
 195 200 205  
 Gly Leu Val Ala Thr Gly Glu Ser Phe Ala Met Ser Arg Asn Tyr Phe  
 210 215 220  
 Leu Ser Leu Gln Lys Leu Tyr Pro Glu Ile His Gly Phe Asp Ser Val

225 230 235 240  
 Ser Gly Ala Val Ser Gln Val Cys Tyr Glu Tyr Ser Ile Pro Cys Leu  
 245 250 255  
 Gly Val Asn Ile Leu Leu Pro His Pro Leu Glu Ser Arg Ser Asn Glu  
 260 265 270  
 Asp Trp Lys His Leu Gln Ser Glu Ala Ser Lys Ile Tyr Met Asp Thr  
 275 280 285  
 Leu Leu Lys Ser Val Leu Lys Glu Leu Cys Ser Ser His  
 290 295 300  
 <210>244  
 <211>233  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>244  
 Phe Ile Met Leu Gln Ser Cys Lys Lys Ala Leu Leu Ser Ile Val Val  
 1 5 10 15  
 Ser Ile Leu Ala Phe His Pro Ile Pro Gly Met Gly Val Glu Ala Lys  
 20 25 30  
 Ser Gly Phe Leu Gly Lys Val Lys Gly Trp Phe Ser Lys Lys Glu Ile  
 35 40 45  
 Gln Glu Glu Ala Arg Ile Leu Pro Val Lys Asp Ser Leu Ser Trp Lys  
 50 55 60  
 Arg Tyr Asp Tyr Thr Ser Ser Gly Phe Ser Val Glu Phe Pro Gly  
 65 70 75 80  
 Glu Pro Asp His Ser Gly Gln Ile Val Glu Val Pro Gln Ser Glu Ile  
 85 90 95  
 Thr Ile Arg Tyr Asp Thr Tyr Val Thr Glu Thr His Pro Asp Asn Thr  
 100 105 110  
 Val Tyr Val Val Ser Val Trp Glu Tyr Pro Glu Lys Val Asp Ile Ser  
 115 120 125  
 Arg Pro Glu Leu Asn Leu Gln Glu Gly Phe Ser Gly Met Met Gln Ala  
 130 135 140  
 Leu Pro Glu Ser Gln Val Leu Phe Met Gln Ala Arg Gln Ile Gln Gly  
 145 150 155 160  
 His Lys Ala Leu Glu Phe Trp Ile Val Cys Glu Asp Val Tyr Phe Arg  
 165 170 175  
 Gly Met Leu Ile Ser Val Asn His Thr Leu Tyr Gln Val Phe Met Val  
 180 185 190  
 Tyr Lys Asn Lys Asn Pro Gln Ala Leu Asp Lys Glu Tyr Glu Ala Phe  
 195 200 205  
 Ser Gln Ser Phe Lys Ile Thr Lys Ile Arg Glu Pro Arg Thr Ile Pro  
 210 215 220  
 Ser Ser Val Lys Lys Lys Val Ser Leu  
 225 230  
 <210>245  
 <211>210  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>245  
 Val Phe Val Arg Tyr Leu Leu Met Lys Pro Glu Glu Ser Glu Cys Leu  
 1 5 10 15  
 Cys Ile Gly Val Leu Pro Ala Arg Trp Asn Ser Ser Arg Tyr Pro Gly  
 20 25 30  
 Lys Pro Leu Ala Lys Ile His Gly Lys Ser Leu Ile Gln Arg Thr Tyr  
 35 40 45  
 Glu Asn Ala Ser Gln Ser Ser Leu Leu Asp Lys Ile Val Val Ala Thr  
 50 55 60  
 Asp Asp Gln His Ile Ile Asp His Val Thr Asp Phe Gly Gly Tyr Ala  
 65 70 75 80  
 Val Met Thr Ser Pro Thr Cys Ser Asn Gly Thr Glu Arg Thr Gly Glu  
 85 90 95  
 Val Ala Arg Lys Tyr Phe Pro Lys Ala Glu Ile Ile Val Asn Ile Gln  
 100 105 110  
 Gly Asp Glu Pro Cys Leu Asn Ser Glu Val Val Asp Ala Leu Val Gln

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      115              120              125
Lys Leu Arg Ser Ser Pro Glu Ala Glu Leu Val Thr Pro Val Ala Leu
      130              135              140
Thr Thr Asp Arg Glu Glu Ile Leu Thr Glu Lys Lys Val Lys Cys Val
      145              150              155              160
Phe Asp Ser Glu Gly Arg Ala Leu Tyr Phe Ser Arg Ser Pro Ile Pro
      165              170              175
Phe Ile Leu Lys Lys Ala Thr Pro Val Tyr Leu His Ile Gly Val Tyr
      180              185              190
Ala Phe Lys Arg Glu Ala Leu Phe Arg Tyr Leu Thr Ala Xaa Leu Xaa
      195              200              205
Ser Ser
      210
<210>246
<211>537
<212>PRT
<213>Chlamydia pneumoniae
<400>246
Met Pro Phe Lys Cys Ile Phe Leu Thr Gly Gly Val Val Ser Ser Leu
  1          5          10          15
Gly Lys Gly Leu Thr Ala Ala Ser Leu Ala Leu Ile Leu Glu Arg Gln
      20          25          30
Arg Leu Asn Val Ala Met Leu Lys Leu Asp Pro Tyr Leu Asn Val Asp
      35          40          45
Pro Gly Thr Met Asn Pro Phe Glu His Gly Glu Ile Tyr Val Thr Asp
      50          55          60
Asp Gly Val Glu Thr Asp Leu Asp Leu Gly His Tyr His Arg Phe Ser
      65          70          75          80
Ser Ala Ala Leu Ser Arg His Ser Ser Ala Thr Ser Gly Gln Ile Tyr
      85          90          95
Ala Arg Val Ile Lys Arg Glu Arg Glu Gly Asp Tyr Leu Gly Ser Thr
      100          105          110
Val Gln Val Ile Pro His Ile Thr Asn Glu Ile Ile Gln Val Ile Leu
      115          120          125
Asp Ala Ala Lys Glu His Ser Pro Asp Val Leu Ile Val Glu Ile Gly
      130          135          140
Gly Thr Ile Gly Asp Ile Glu Ser Leu Pro Phe Leu Glu Ala Ile Arg
      145          150          155          160
Gln Phe Arg Tyr Asp His Ser Glu Asp Cys Leu Asn Ile His Met Thr
      165          170          175
Tyr Val Pro Tyr Leu Gln Ala Ala Asp Glu Val Lys Ser Lys Pro Thr
      180          185          190
Gln His Ser Val Gln Thr Leu Arg Gly Ile Gly Ile Ile Pro Asp Ala
      195          200          205
Ile Leu Cys Arg Ser Glu Lys Pro Leu Thr Gln Glu Val Lys Ser Lys
      210          215          220
Ile Ser Leu Phe Cys Asn Val Pro Asn Arg Ala Val Phe Asn Val Ile
      225          230          235          240
Asp Val Lys His Thr Ile Tyr Glu Met Pro Leu Met Leu Ala Gln Glu
      245          250          255
Lys Ile Ala Asn Phe Ile Gly Glu Lys Leu Lys Leu Ala Thr Val Pro
      260          265          270
Glu Asn Leu Asp Asp Trp Arg Val Leu Val Asn Gln Leu Ser Gln Asp
      275          280          285
Leu Pro Lys Val Lys Ile Gly Val Val Gly Lys Tyr Val Gln His Arg
      290          295          300
Asp Ala Tyr Lys Ser Ile Phe Glu Ala Leu Thr His Ala Ala Leu Arg
      305          310          315          320
Leu Gly His Ala Ala Glu Ile Ile Pro Ile Asp Ala Glu Asp Glu Asn
      325          330          335
Leu Thr Met Glu Leu Ser Gln Cys Asp Ala Cys Leu Val Pro Gly Gly
      340          345          350
Phe Gly Val Arg Gly Trp Glu Gly Lys Ile Ala Ala Ala Lys Phe Cys
      355          360          365

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Arg Glu Gln Gly Ile Pro Tyr Phe Gly Ile Cys Leu Gly Met Gln Val  
 370 375 380  
 Leu Val Val Glu Tyr Ala Arg Asn Val Leu Asn Leu Asp Gln Ala Asn  
 385 390 395 400  
 Ser Leu Glu Met Asp Pro Asn Thr Pro His Pro Ile Val Tyr Val Met  
 405 410 415  
 Glu Gly Gln Asp Pro Leu Val Ala Thr Gly Gly Thr Met Arg Leu Gly  
 420 425 430  
 Ala Tyr Pro Cys Leu Leu Lys Pro Gly Ser Lys Ala His Lys Ala Tyr  
 435 440 445  
 Asn Glu Ser Ser Leu Ile Gln Glu Arg His Arg His Arg Tyr Glu Val  
 450 455 460  
 Asn Pro Asp Tyr Ile Gln Ser Leu Glu Asp His Gly Leu Arg Ile Val  
 465 470 475 480  
 Gly Thr Cys Pro Pro Gln Gly Leu Cys Glu Ile Ile Glu Val Ser Asp  
 485 490 495  
 His Pro Trp Met Ile Gly Val Gln Phe His Pro Glu Phe Val Ser Lys  
 500 505 510  
 Leu Ile Ser Pro His Pro Leu Phe Ile Ala Phe Ile Glu Ala Ala Leu  
 515 520 525  
 Val Tyr Ser Lys Asp Ala Ser His Val  
 530 535

&lt;210&gt;247

&lt;211&gt;154

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;247

Met Gln Ala Met Ser Lys Pro Ser Ser Cys Lys Ala Tyr Leu Gly Ile  
 1 5 10 15  
 Asp Tyr Gly Lys Lys Arg Ile Gly Leu Ala Tyr Ala Ala Glu Pro Leu  
 20 25 30  
 Leu Leu Thr Leu Pro Ile Gly Asn Ile Glu Ala Gly Lys Asn Leu Lys  
 35 40 45  
 Leu Ser Ala Glu Ala Leu His Lys Ile Ile Leu Ser Arg Asn Ile Thr  
 50 55 60  
 Cys Val Val Leu Gly Asn Pro Leu Pro Met Gln Lys Gly Leu Tyr Ser  
 65 70 75 80  
 Ser Leu Gln Glu Glu Val Ser Leu Leu Ala Glu Glu Leu Lys Lys Leu  
 85 90 95  
 Ser Thr Val Glu Ile Ile Leu Trp Asp Glu Arg Leu Ser Ser Val Gln  
 100 105 110  
 Ala Glu Arg Met Leu Lys Gln Asp Cys Gly Leu Ser Arg Lys Asp Arg  
 115 120 125  
 Lys Gly Lys Thr Asp Ser Leu Ala Ala Thr Leu Ile Leu Thr Ser Phe  
 130 135 140  
 Leu Asp Ser Leu Pro Lys Lys Leu Thr Leu  
 145 150

&lt;210&gt;248

&lt;211&gt;390

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;248

Met Thr Asn Val Val Gln Glu Thr Ile Gly Gly Leu Asn Ser Pro Arg  
 1 5 10 15  
 Thr Cys Pro Pro Cys Ile Leu Val Ile Phe Gly Ala Thr Gly Asp Leu  
 20 25 30  
 Thr Ala Arg Lys Leu Leu Pro Ala Leu Tyr His Leu Thr Lys Glu Gly  
 35 40 45  
 Arg Leu Ser Asp Gln Phe Val Cys Val Gly Phe Ala Arg Arg Glu Lys  
 50 55 60  
 Ser Asn Glu Leu Phe Arg Gln Glu Met Lys Gln Ala Val Ile Gln Phe  
 65 70 75 80  
 Ser Pro Ser Glu Leu Asp Ile Lys Val Trp Glu Asp Phe Gln Gln Arg  
 85 90 95

Leu Phe Tyr His Arg Ser Glu Phe Asp Asn Asn Met Gly Tyr Thr Ser  
 100 105 110  
 Leu Lys Asp Ser Leu Glu Asp Leu Asp Lys Thr Tyr Gly Thr Arg Gly  
 115 120 125  
 Asn Arg Leu Phe Tyr Leu Ser Thr Pro Pro Gln Tyr Phe Ser Arg Ile  
 130 135 140  
 Ile Glu Asn Leu Asn Lys His Lys Leu Phe Tyr Lys Asn Gln Asp Gln  
 145 150 155 160  
 Gly Lys Pro Trp Ser Arg Val Ile Ile Glu Lys Pro Phe Gly Arg Asp  
 165 170 175  
 Leu Asp Ser Ala Lys Gln Leu Gln Gln Cys Ile Asn Glu Asn Leu Asn  
 180 185 190  
 Glu Asn Ser Val Tyr His Ile Asp His Tyr Leu Gly Lys Glu Thr Val  
 195 200 205  
 Gln Asn Ile Leu Thr Thr Arg Phe Ala Asn Thr Ile Phe Glu Ser Cys  
 210 215 220  
 Trp Asn Ser Gln Tyr Ile Asp His Val Gln Ile Ser Leu Ser Glu Thr  
 225 230 235 240  
 Ile Gly Ile Gly Ser Arg Gly Asn Phe Phe Glu Lys Ser Gly Met Leu  
 245 250 255  
 Arg Asp Met Val Gln Asn His Met Met Gln Leu Leu Cys Leu Leu Thr  
 260 265 270  
 Met Glu Pro Thr Thr Phe Asp Ala Asp Glu Ile Arg Lys Xaa Lys  
 275 280 285  
 Ile Lys Ile Leu Gln Arg Ile Ser Pro Phe Ser Glu Gly Ser Ser Ile  
 290 295 300  
 Val Arg Gly Gln Tyr Gly Pro Gly Thr Val Gln Gly Val Ser Val Leu  
 305 310 315 320  
 Gly Tyr Arg Glu Glu Glu Asn Val Asp Lys Asp Ser Arg Val Glu Thr  
 325 330 335  
 Tyr Val Ala Leu Lys Gln Ser Leu Ile Ile Pro Val Gly Leu Glu Phe  
 340 345 350  
 Leu Ser Ile Tyr Val Gln Glu Asn Asp Ser Pro Lys Asn Leu Gln Thr  
 355 360 365  
 Phe Leu Leu Phe Leu Lys Asn His Pro Thr Ile Tyr Leu Gln Pro Lys  
 370 375 380  
 Asn Val His Val Val Arg  
 385 390

&lt;210&gt;249

&lt;211&gt;132

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;249

Gln Arg Phe Pro Ser Arg Asp Leu Arg Ser Phe Lys Thr Val Ile Asn  
 1 5 10 15  
 Asn Pro Arg Trp Leu Gly Val Pro Phe Tyr Leu Arg Ala Gly Lys Arg  
 20 25 30  
 Leu Ala Lys Lys Ser Thr Asp Ile Ser Ile Ile Phe Lys Lys Ser Pro  
 35 40 45  
 Tyr Asn Leu Phe Ala Ala Glu Glu Cys Ser Arg Cys Pro Ile Glu Asn  
 50 55 60  
 Asp Leu Leu Ile Ile Arg Ile Gln Pro Asp Glu Gly Val Ala Leu Lys  
 65 70 75 80  
 Phe Asn Cys Lys Val Pro Gly Thr Asn Asn Ile Val Arg Pro Val Lys  
 85 90 95  
 Met Asp Phe Arg Tyr Asp Ser Tyr Phe Gln Thr Thr Thr Pro Glu Ala  
 100 105 110  
 Tyr Glu Arg Leu Leu Cys Asp Cys Ile Ile Gly Asp Arg Thr Phe Ile  
 115 120 125  
 Tyr Gly Gly Gly  
 130

&lt;210&gt;250

&lt;211&gt;266

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;250

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Met Thr Asn Ile Gly Ile Glu Thr Met Ala Thr Leu Ile Asn Phe Asn
 1           5           10           15
Asp Thr Asn Lys Leu Leu Leu Thr Lys Gln Pro Ser Leu Phe Ile Asp
           20           25           30
Leu Ala Ser Lys Asp Trp Ile Ala Ser Ala Asn Gln Ala Ile Lys Gln
           35           40           45
Arg Gly Ala Phe Tyr Val Ala Leu Ser Gly Gly Lys Thr Pro Leu Glu
           50           55           60
Ile Tyr Lys Asp Ile Val Ile Asn Lys Asp Lys Leu Ile Asp Pro Ser
           65           70           75           80
Lys Ile Phe Leu Phe Trp Gly Asp Glu Arg Leu Ala Pro Ile Thr Ser
           85           90           95
Ser Glu Ser Asn Tyr Gly Gln Ala Met Ser Ile Leu Arg Asp Leu Asn
           100          105          110
Ile Pro Asp Glu Gln Ile Phe Arg Met Glu Thr Glu Asn Pro Asp Gly
           115          120          125
Ala Lys Lys Tyr Gln Glu Leu Ile Glu Asn Lys Ile Pro Asp Ala Ser
           130          135          140
Phe Asp Met Ile Met Leu Gly Leu Gly Glu Asp Gly His Thr Leu Ser
           145          150          155          160
Leu Phe Ser Asn Thr Ser Ala Leu Glu Glu Asn Asp Leu Val Val
           165          170          175
Phe Asn Ser Val Pro His Leu Glu Thr Glu Arg Met Thr Leu Thr Phe
           180          185          190
Pro Cys Val His Lys Gly Lys His Val Val Val Tyr Val Gln Gly Glu
           195          200          205
Asn Lys Lys Pro Ile Leu Lys Ser Val Phe Phe Ser Glu Gly Arg Glu
           210          215          220
Glu Lys Leu Tyr Pro Ile Glu Arg Val Gly Arg Asp Arg Ser Pro Leu
           225          230          235          240
Phe Trp Ile Ile Ser Pro Glu Ser Tyr Asp Ile Ala Asp Phe Asp Asn
           245          250          255
Ile Ser Ser Ile Tyr Lys Met Asp Ile Leu
           260          265

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&lt;210&gt;251

&lt;211&gt;194

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;251

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Leu Asn Ser Phe Phe Ser Phe Asn Ser Leu Asn Ser Trp His Cys Leu
 1           5           10           15
Ser Ile Ile Phe Cys Ser Ser Trp Ser Cys Ser Arg Asn Tyr Cys Gly
           20           25           30
Asn Asp Gly Val Cys Ala Ala Gly Gly Ala Leu Leu Ile Ser Leu
           35           40           45
Leu Gly Leu Trp Ile Ala Ile Val Arg Lys Ala Lys His Gln Glu Ala
           50           55           60
Cys Val Gly His Leu Thr Asn Val Val Leu His Thr Ala Val Ser Glu
           65           70           75           80
Ala Leu Leu His Asp Pro Ser His Phe Gln Thr Asn Ala Leu Ala Arg
           85           90           95
Asp Leu Phe Leu Thr Asp Cys Leu Ser His Tyr Gly His Leu Phe Ser
           100          105          110
Asn Glu Glu Val Ala Gln Leu Val Gln Gly Gly Ala Pro Gly Gly Gly
           115          120          125
Ser Arg Pro Ser Gln His Tyr Gly Gly Ser Ser Asp Tyr Gln Asn Arg
           130          135          140
Arg Gly Gly Asn Gly Asn Phe Gly Gly Ser His Phe Gly Gly Gly Gly
           145          150          155          160
Gly Phe Ala Gly Ser His Phe Gly Ala Gly Tyr Pro Thr Ala Pro Thr
           165          170          175
Met Pro Ser Ala Pro Pro Pro Phe Pro Pro Pro Ala Tyr Asp Thr Ile

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180 185 190

Tyr Gly

<210>252  
<211>167  
<212>PRT  
<213>Chlamydia pneumoniae  
<400>252

Xaa Ala Gln Asn Leu Gly Asn Leu Phe Asn Ser Phe Gly Ile Leu Ile  
1 5 10 15  
Met Cys Phe Ser Gln Cys Lys Ser Cys Gln Thr Pro Glu Lys Glu Thr  
20 25 30  
Ser Ala Ile Val Leu Gly Ala Thr Leu Leu Phe Phe Val Ile Ala Leu  
35 40 45  
Ile Leu Gly Pro Thr Leu Gly Ala Leu Val Tyr Cys Ala Tyr Lys Val  
50 55 60  
Tyr Thr Leu Gly Lys Met Ile Tyr Ser Leu Asn Lys Ala Lys Ala Lys  
65 70 75 80  
Val Leu Arg His Pro Ala Gln Asn Val Phe His Arg Ala Ala Gly Val  
85 90 95  
Ala Thr Ile Arg Ser Ser Glu Glu Ala Val Lys Ala Cys Lys Leu Tyr  
100 105 110  
Lys Ser Ala Met Ile Gly Ser Leu Val Val Ser Leu Ile Ala Ser Leu  
115 120 125  
Ala Leu Ile Ala Leu Thr Ala Gly Ile Val Leu Val Leu Phe Phe Val  
130 135 140  
Ala Pro Gly Ala Ala Pro Val Ile Thr Ala Ala Met Met Gly Ser Ala  
145 150 155 160  
Leu Gln Val Glu Ala Leu Cys  
165

<210>253  
<211>106  
<212>PRT  
<213>Chlamydia pneumoniae  
<400>253

Lys Leu Ala Ile Ile Arg Arg Arg Arg Arg Gly Lys Arg Arg Ile  
1 5 10 15  
Arg Arg Val Tyr Arg Arg Ile Gly Arg Trp Arg Phe Ser Arg Asn His  
20 25 30  
Val Ala Ala Thr Ile Ala Pro Leu Leu Met Lys Gln Ser Leu Val Thr  
35 40 45  
Trp Arg Trp Arg Arg Leu Thr Val Gln Gly Asp Phe Ala Leu Asp Ile  
50 55 60  
Ser Ile Leu Val Ile Thr Glu Glu Leu Leu Val Ser Ser Tyr Arg Leu  
65 70 75 80  
Ser Lys His Phe Phe Ser Ser Trp Ser Asp Arg Lys Val Gly His Leu  
85 90 95  
Asn Asn Cys Val Thr His Tyr Thr Thr Gln  
100 105

<210>254  
<211>390  
<212>PRT  
<213>Chlamydia pneumoniae  
<400>254

Ile Phe Leu Val Lys Phe Met Ser Ala Met Ile Ser Leu Ser Ser Ser  
1 5 10 15  
His Glu Ala Ser Ile Ala Ser Asn Thr Gln Val Arg Asp Val Leu Val  
20 25 30  
Ser Leu Ala Met Asp Glu Phe Val Glu His Asn Thr Glu Ile Leu Pro  
35 40 45  
Ile Lys Val Phe Leu Ala Arg Gly Thr Leu Ser Ser Thr Ala Ile Ile  
50 55 60  
Asp Asp Leu Lys Asp Val Glu Thr Glu Gly Glu His His Phe Gln  
65 70 75 80

Val Tyr Ser Asn Ile Ser Leu Lys Met Ile Tyr Gln Arg Phe Phe Glu  
                                     85                                    90                                    95  
 Lys Ile Phe Gly Ile Gly Cys Cys Pro Leu Leu Leu Val Thr Asp Ser  
                                     100                                    105                                    110  
 His His Thr Asp Pro Cys Gly Ala Leu Ile Thr Gly Ile Phe Ala Ala  
                                     115                                    120                                    125  
 Val Leu Phe Thr Val Leu Ala Ile Val Phe Gly Pro Thr Leu Gly Ile  
                                     130                                    135                                    140  
 Leu Cys Tyr Ser Ala Tyr Lys Ile Tyr Gln Leu Thr Lys Lys Ile Ser  
 145                                    150                                    155                                    160  
 Ser Leu Ser Arg Thr His Thr Glu Val Ile Asn Ser Val Gln Lys Ser  
                                     165                                    170                                    175  
 Asp Pro Phe Ile His Arg Ser Gly Ala Val Ala Ala Ala Ala Ala Ser  
                                     180                                    185                                    190  
 Gln Ser Thr Ile Lys Ala Cys Lys Val Phe Arg Gln Ser Thr Leu Ile  
                                     195                                    200                                    205  
 Phe Phe Val Leu Gly Leu Ile Thr Ile Ser Leu Ala Ala Leu Ile  
                                     210                                    215                                    220  
 Val Gly Leu Val Phe Ala Leu Phe Phe Leu Asp Pro Gly Ala Pro Ala  
 225                                    230                                    235                                    240  
 Val Met Thr Ala Ala Met Ile Gly Cys Cys Ala Ala Gly Gly Thr Gly  
                                     245                                    250                                    255  
 Ile Leu Leu Ser Val Ile Gly Phe Leu Leu Ala Ser Val Tyr Ser Val  
                                     260                                    265                                    270  
 Gln Lys Ser Gln Glu Gly Val His His Met His Thr Ala Leu Leu Arg  
                                     275                                    280                                    285  
 Cys Ile Val Ser Asn Thr Ile Ile Gln Met Pro Tyr Leu Pro Ile Thr  
                                     290                                    295                                    300  
 Pro Gly Thr Lys Lys Val Leu Thr Gln Ser Ile Arg Arg Tyr Gln Gln  
 305                                    310                                    315                                    320  
 Phe Phe Ser Asp Asp Glu Tyr Arg Asp Ile Glu Ser Glu Val Pro Leu  
                                     325                                    330                                    335  
 Asn Arg Gln Thr Thr Pro Pro Pro Ser Tyr Glu Thr Leu Phe His Glu  
                                     340                                    345                                    350  
 Glu Gly Ser Asp Gly Ser Ser Asn Val Ile Pro Arg Glu Ser Pro Pro  
                                     355                                    360                                    365  
 Ala Tyr Ser Thr Ile Asp Ser Ser Asn Ser Pro Phe Pro Ser Ser Ser  
                                     370                                    375                                    380  
 Pro Pro Pro Tyr Tyr Arg  
 385                                    390

&lt;210&gt;255

&lt;211&gt;125

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;255

Thr Pro Ser Trp Leu Phe Cys Thr Leu Tyr Thr Glu Ala Ser Lys Lys  
   1                                    5                                    10                                    15  
 Pro Ile Thr Glu Arg Arg Ile Pro Val Pro Pro Ala Ala Gln His Pro  
                                     20                                    25                                    30  
 Ile Ile Ala Ala Val Ile Thr Ala Gly Ala Pro Gly Ser Lys Lys Asn  
                                     35                                    40                                    45  
 Arg Ala Lys Thr Arg Pro Thr Ile Lys Ala Ala Lys Asp Ile Val Ile  
                                     50                                    55                                    60  
 Ile Lys Pro Ser Thr Lys Lys Ile Asn Val Asp Cys Leu Asn Thr Leu  
                                     65                                    70                                    75                                    80  
 Gln Ala Leu Ile Val Asp Cys Glu Ala Ala Ala Ala Thr Ala Pro  
                                     85                                    90                                    95  
 Glu Arg Cys Ile Lys Gly Ser Asp Phe Cys Thr Glu Phe Met Thr Ser  
                                     100                                    105                                    110  
 Val Trp Val Leu Asp Lys Glu Asp Ile Phe Leu Val Ser  
                                     115                                    120                                    125

&lt;210&gt;256

&lt;211&gt;95

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;256

Arg His Leu Lys Cys Asp Pro Arg Leu Thr Leu Ser Pro Gly Lys Ala  
 1 5 10 15  
 Leu Asp Ala Leu His Asn Leu Asn Gly Asn Glu Arg Ser Arg Asn Arg  
 20 25 30  
 Thr Phe Lys Ile Asn Lys Thr Thr Leu Thr Thr Ala Gln Thr Thr Ala  
 35 40 45  
 Ile Thr Gly Tyr Asn Ile Val Ser Thr Thr Lys Gln Ala Val Phe Leu  
 50 55 60  
 Thr Gln Gly Phe Ile Ile Ile Ile Ser Leu Arg His Ser Lys Lys Asn  
 65 70 75 80  
 Arg Thr Ser His Lys Asn Asn Arg Trp Phe Leu Arg Lys Leu Ile  
 85 90 95

&lt;210&gt;257

&lt;211&gt;291

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;257

Thr Cys Gln Lys Glu Ile Met Lys His Tyr Leu Ser Phe Ser Pro Ser  
 1 5 10 15  
 Ala Asp Phe Phe Ser Lys Gln Gly Ala Ile Glu Thr Gln Val Leu Phe  
 20 25 30  
 Gly Glu Arg Val Leu Val Lys Gly Ser Thr Cys Tyr Ala Tyr Ser Gln  
 35 40 45  
 Leu Phe His Asn Glu Leu Leu Trp Lys Pro Tyr Pro Gly His Ser Phe  
 50 55 60  
 Arg Ser Thr Leu Val Pro Cys Thr Pro Glu Phe His Ile His Pro Asn  
 65 70 75 80  
 Val Ser Val Val Ser Val Asp Ala Phe Leu Asp Pro Trp Gly Ile Pro  
 85 90 95  
 Leu Pro Phe Gly Thr Leu Leu His Val Asn Ser Gln Asn Thr Val Ile  
 100 105 110  
 Phe Pro Lys Asp Ile Leu Asn His Met Asn Thr Ile Trp Gly Ser Gly  
 115 120 125  
 Thr Pro Gln Cys Asp Pro Arg His Leu Arg Arg Leu Asn Tyr Asn Phe  
 130 135 140  
 Phe Ala Glu Leu Leu Ile Lys Asp Ala Asp Leu Leu Asn Phe Pro  
 145 150 155 160  
 Tyr Val Trp Gly Gly Arg Ser Val His Glu Ser Leu Glu Lys Pro Gly  
 165 170 175  
 Val Asp Cys Ser Gly Phe Ile Asn Ile Leu Tyr Gln Ala Gln Gly Tyr  
 180 185 190  
 Asn Val Pro Arg Asn Ala Ala Asp Gln Tyr Ala Asp Cys His Trp Ile  
 195 200 205  
 Ser Ser Phe Glu Asn Leu Pro Ser Gly Gly Leu Ile Phe Leu Tyr Pro  
 210 215 220  
 Lys Glu Glu Lys Arg Ile Ser His Val Met Leu Lys Gln Asp Ser Ser  
 225 230 235 240  
 Thr Leu Ile His Ala Ser Gly Gly Gly Lys Lys Val Glu Tyr Phe Ile  
 245 250 255  
 Leu Glu Gln Asp Gly Lys Phe Leu Asp Ser Thr Tyr Leu Phe Phe Arg  
 260 265 270  
 Asn Asn Gln Arg Gly Arg Ala Phe Gly Ile Pro Arg Lys Arg Lys  
 275 280 285  
 Ala Phe Leu  
 290

&lt;210&gt;258

&lt;211&gt;168

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;258

Val Val Ala Lys Ser Thr Ile Gln Glu Ser Val Ala Thr Gly Arg Arg  
 1 5 10 15

Lys Gln Ala Val Ser Ser Val Arg Leu Arg Pro Gly Ser Gly Lys Ile  
                   20                  25                  30  
 Asp Val Asn Gly Lys Ser Phe Glu Asp Tyr Phe Pro Leu Glu Ile Gln  
                   35                  40                  45  
 Arg Thr Thr Ile Leu Ser Pro Leu Lys Lys Ile Thr Glu Asp Gln Ser  
                   50                  55                  60  
 Gln Tyr Asp Leu Ile Ile Arg Val Ser Gly Gly Ile Gln Gly Gln  
                   65                  70                  75                  80  
 Val Ile Ala Thr Arg Leu Gly Leu Ala Arg Ala Leu Leu Lys Glu Asn  
                   85                  90                  95  
 Glu Glu Asn Arg Gln Asp Leu Lys Ser Cys Gly Phe Leu Leu Glu Ile  
                   100                  105                  110  
 Leu Glu Gly Lys Asn Val Lys Asn Thr Asp Ile Lys Lys Leu Val Lys  
                   115                  120                  125  
 Ala Ser Asn Ser Leu Ser Val Lys Ile Phe Thr Val Phe Arg Ile Val  
                   130                  135                  140  
 Phe Gly Lys Ser Leu Ser Tyr Tyr Arg Lys Ala Phe Leu Phe Leu Gly  
                   145                  150                  155                  160  
 Ile Pro Lys Asn Ala Arg Pro Leu  
                                   165

&lt;210&gt;259

&lt;211&gt;149

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;259

Met Glu Lys Arg Lys Asp Thr Lys Thr Thr Ile Val Lys Ser Ser Glu  
           1                  5                  10                  15  
 Thr Thr Lys Ser Trp Tyr Val Val Asp Ala Ala Gly Lys Thr Leu Gly  
                   20                  25                  30  
 Arg Leu Ser Ser Glu Val Ala Lys Ile Leu Arg Gly Lys His Lys Val  
                   35                  40                  45  
 Thr Tyr Thr Pro His Val Ala Met Gly Asp Gly Val Ile Val Ile Asn  
                   50                  55                  60  
 Ala Glu Lys Val Arg Leu Thr Gly Ala Lys Lys Gly Gln Lys Ile Tyr  
                   65                  70                  75                  80  
 Arg Tyr Tyr Thr Gly Tyr Ile Ser Gly Met Arg Glu Ile Pro Phe Glu  
                   85                  90                  95  
 Asn Met Met Ala Arg Lys Pro Asn Tyr Ile Ile Glu His Ala Ile Lys  
                   100                  105                  110  
 Gly Met Met Pro Arg Thr Arg Leu Gly Lys Lys Gln Leu Lys Ser Leu  
                   115                  120                  125  
 Arg Ile Val Lys Gly Asp Ser Tyr Glu Thr Phe Glu Ser Gln Lys Pro  
                   130                  135                  140  
 Ile Leu Leu Asp Ile  
                   145

&lt;210&gt;260

&lt;211&gt;226

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;260

Met Ser Leu Leu Ile Glu Ala Lys Asn Leu Ser Lys Thr Ile Gln Gln  
           1                  5                  10                  15  
 Gln Asn Gln Asn Ile Ser Ile Leu Thr Asp Val Ser Leu Ser Leu His  
                   20                  25                  30  
 Ala Gly Glu Thr Ile Ser Ile Thr Gly Ala Ser Gly Asn Gly Lys Thr  
                   35                  40                  45  
 Thr Leu Leu His Leu Leu Gly Thr Leu Asp Val Pro Ser Ser Gly Ser  
                   50                  55                  60  
 Leu Arg Phe Phe Asp Lys Asp Leu Lys Asn Gln Asp Leu Ala Asn Phe  
                   65                  70                  75                  80  
 Arg Asn Gln His Ile Gly Phe Val Phe Gln Asn Phe Tyr Leu Leu Glu  
                   85                  90                  95  
 Asp Asp Thr Val Leu Lys Asn Val Leu Met Pro Ala Leu Ile Ala Arg  
                   100                  105                  110

Lys Asn Ile Ser Lys Gly Ser Pro Val Tyr Thr Arg Ala Leu Glu Leu  
 115 120 125  
 Leu Asp Leu Val Asn Leu Glu Asp Lys Val Arg Thr Arg Cys Ser Lys  
 130 135 140  
 Leu Ser Gly Gly Glu Lys Gln Arg Val Ala Ile Ala Arg Ala Leu Ile  
 145 150 155 160  
 Asn Glu Pro Ala Ile Leu Leu Ala Asp Glu Pro Ser Gly Asn Leu Asp  
 165 170 175  
 Glu Glu Thr Ser Glu Gln Ile His Asn Leu Leu Leu Glu Gln Ala Ser  
 180 185 190  
 Ala Leu Cys Gly Ile Leu Ile Val Thr His Asn Lys His Leu Ala Ser  
 195 200 205  
 Arg Cys Ser Arg Glu Gly Val Leu Ser Asn Gly Lys Leu Phe Phe His  
 210 215 220  
 Asn Ser  
 225  
 <210>261  
 <211>506  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>261  
 Leu Glu Val Met Lys Phe Glu Phe Ser Val Ala Leu Lys Tyr Leu Ile  
 1 5 10 15  
 Pro Gly Arg Gly Arg Leu Tyr Ser Ala Ile Val Ser Leu Phe Ser Val  
 20 25 30  
 Gly Ile Ile Ser Leu Val Val Trp Leu Ser Ile Val Phe Ile Ser Val  
 35 40 45  
 Ile His Gly Leu Glu Gln Arg Trp Ile Glu Asp Leu Ser Gln Leu His  
 50 55 60  
 Ser Pro Ile Thr Ile Leu Pro Ser Asp Thr Tyr Tyr Ser Ser Tyr Tyr  
 65 70 75 80  
 Tyr Gln Ile Asp Lys His Ser Ser Leu Ser Asn Tyr Thr Thr Lys Thr  
 85 90 95  
 Leu Gly Glu Lys Ile Ala Ser Pro Gln Val Asp Pro Tyr Asp Pro Glu  
 100 105 110  
 Ser Asp Tyr Leu Leu Pro Glu Thr Phe Pro Leu Lys Asp Cys Asp Leu  
 115 120 125  
 Gly Gly Gln Gln Lys Asp Pro Val Lys Met Thr Leu Glu Ser Leu Gly  
 130 135 140  
 Pro Tyr Leu Gln Ser Gln His Gly Lys Val Ile Glu Phe Glu Gln Gly  
 145 150 155 160  
 Val Gly Tyr Leu Asp Ile Lys Thr Ser Leu Lys Leu Gln Lys Pro Gln  
 165 170 175  
 Pro Arg Asn Leu Thr His Phe Leu Thr Tyr Pro Ser Lys Leu Ser Tyr  
 180 185 190  
 Glu Asp Lys Val Leu Pro Tyr Asp Glu Thr Asp Tyr Thr Ser Ala Glu  
 195 200 205  
 Leu Asn Pro Phe Asn Arg Ser Pro Ser Gly Trp Gln Gln Asp Phe His  
 210 215 220  
 His Leu Glu Glu Leu Tyr Arg Gly Ala Ser Ile Ile Leu Pro Ser Thr  
 225 230 235 240  
 Tyr Lys Asp Ser Gly Tyr Lys Val Gly Asp Thr Gly Val Phe Ser Thr  
 245 250 255  
 Tyr Ser Ile Glu Asn Glu Lys Glu Thr Gln Tyr Thr Val His Val Ile  
 260 265 270  
 Gly Phe Tyr Asn Pro Gly Leu Ser Pro Leu Gly Gly Arg Thr Val Phe  
 275 280 285  
 Ile Asp Pro Asp Leu Ala Arg Ser Ile Arg Ser Gln Ser Glu Gly Leu  
 290 295 300  
 Gly Met Ser Asn Gly Phe His Leu Phe Phe Pro Asn Thr Lys Arg Ile  
 305 310 315 320  
 Val Phe Val Lys Lys Gln Ile Glu Asn Ile Leu Thr Ser Leu Gly Val  
 325 330 335  
 Asp Asp Tyr Trp Glu Ile Ser Ser Leu His Asp Tyr Asp Tyr Phe Gln

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          340          345          350
Pro Ile Leu Asp Gln Leu Gln Ser Asp Gln Val Leu Phe Leu Phe Val
          355          360          365
Cys Ile Leu Ile Leu Ile Val Ala Cys Ser Asn Ile Val Thr Met Ser
          370          375          380
Met Leu Leu Val Asn Asn Lys Lys Lys Glu Ile Gly Ile Leu Lys Ala
          385          390          395          400
Met Gly Thr Ser Ser Arg Ser Leu Lys Ile Ile Phe Ala Cys Cys Gly
          405          410          415
Ala Phe Ser Gly Ala Cys Gly Val Val Ile Gly Thr Ile Phe Ala Ile
          420          425          430
Ile Thr Leu Lys Asn Leu Gln Phe Ile Val Lys Ala Leu Asn Tyr Leu
          435          440          445
Gln Gly Arg Glu Thr Phe Asn Thr Ala Phe Phe Gly Gln Asn Leu Pro
          450          455          460
Asn Ser Val His Pro Gln Ala Ile Tyr Phe Leu Gly Leu Gly Thr Leu
          465          470          475          480
Leu Leu Ala Ala Val Ser Gly Ala Leu Pro Ala Arg Lys Val Ala Lys
          485          490          495
Met His Val Ser Glu Ile Leu Lys Ala Asp
          500          505

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&lt;210&gt;262

&lt;211&gt;84

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;262

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Phe Ser Ala Phe Thr Met Asn Cys Lys Phe Phe Asn Val Ile Ile Ala
  1          5          10          15
Asn Ile Val Pro Ile Thr Thr Pro Gln Ala Pro Glu Asn Ala Pro Gln
          20          25          30
Gln Ala Lys Met Ile Phe Lys Leu Arg Asp Asp Val Pro Ile Ala Leu
          35          40          45
Arg Met Pro Ile Ser Phe Phe Leu Leu Phe Thr Arg Ser Ile Asp Ile
          50          55          60
Val Thr Met Leu Glu Gln Ala Thr Ile Arg Ile Ser Met His Thr Lys
          65          70          75          80
Arg Lys Arg Thr

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&lt;210&gt;263

&lt;211&gt;503

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;263

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Leu Pro Trp Met Ser Pro Phe Lys Lys Ile Val Asn Arg Leu Leu Cys
  1          5          10          15
Tyr Ile Ser Phe Gln Lys Glu Ser Arg Thr Leu Pro Ile Ile Ile Arg
          20          25          30
Glu Pro Arg Met Thr Thr Lys Ser Leu Gly Ser Phe Asn Ser Val Ile
          35          40          45
Ser Lys Asn Lys Ile His Phe Ile Ser Leu Gly Cys Ser Arg Asn Leu
          50          55          60
Val Asp Ser Glu Val Met Leu Gly Ile Leu Leu Lys Ala Gly Tyr Glu
          65          70          75          80
Ser Thr Asn Glu Ile Glu Asp Ala Asp Tyr Leu Ile Leu Asn Thr Cys
          85          90          95
Ala Phe Leu Lys Ser Ala Arg Asp Glu Ala Lys Asp Tyr Leu Asp His
          100          105          110
Leu Ile Asp Val Lys Lys Glu Asn Ala Lys Ile Ile Val Thr Gly Cys
          115          120          125
Met Thr Ser Asn His Lys Asp Glu Leu Lys Pro Trp Met Ser His Ile
          130          135          140
His Tyr Leu Leu Gly Ser Gly Asp Val Glu Asn Ile Leu Ser Ala Ile
          145          150          155          160
Glu Ser Arg Glu Ser Gly Glu Lys Ile Ser Ala Lys Ser Tyr Ile Glu

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165 170 175  
 Met Gly Glu Val Pro Arg Gln Leu Ser Thr Pro Lys His Tyr Ala Tyr  
 180 185 190  
 Leu Lys Val Ala Glu Gly Cys Arg Lys Arg Cys Ala Phe Cys Ile Ile  
 195 200 205  
 Pro Ser Ile Lys Gly Lys Leu Arg Ser Lys Pro Leu Asp Gln Ile Leu  
 210 215 220  
 Lys Glu Phe Arg Ile Leu Val Asn Lys Ser Val Lys Glu Ile Ile Leu  
 225 230 235 240  
 Ile Ala Gln Asp Leu Gly Asp Tyr Gly Lys Asp Leu Ser Thr Asp Arg  
 245 250 255  
 Ser Ser Gln Leu Glu Ser Leu Leu His Glu Leu Leu Lys Glu Pro Gly  
 260 265 270  
 Asp Tyr Trp Leu Arg Met Leu Tyr Leu Tyr Pro Asp Glu Val Ser Asp  
 275 280 285  
 Gly Ile Ile Asp Leu Met Gln Ser Asn Pro Lys Leu Leu Pro Tyr Val  
 290 295 300  
 Asp Ile Pro Leu Gln His Ile Asn Asp Arg Ile Leu Lys Gln Met Arg  
 305 310 315 320  
 Arg Thr Thr Ser Arg Glu Gln Ile Leu Gly Phe Leu Glu Lys Leu Arg  
 325 330 335  
 Ala Lys Val Pro Gln Val Tyr Ile Arg Ser Ser Val Ile Val Gly Phe  
 340 345 350  
 Pro Gly Glu Thr Gln Glu Glu Phe Gln Glu Leu Ala Asp Phe Ile Gly  
 355 360 365  
 Glu Gly Trp Ile Asp Asn Leu Gly Ile Phe Leu Tyr Ser Gln Glu Ala  
 370 375 380  
 Asn Thr Pro Ala Ala Glu Leu Pro Asp Gln Ile Pro Glu Lys Val Lys  
 385 390 395 400  
 Glu Ser Arg Leu Lys Ile Leu Ser Gln Ile Gln Lys Arg Asn Val Asp  
 405 410 415  
 Lys His Asn Gln Lys Leu Ile Gly Glu Lys Ile Glu Ala Val Ile Asp  
 420 425 430  
 Asn Tyr His Pro Glu Thr Asn Leu Leu Leu Thr Ala Arg Phe Tyr Gly  
 435 440 445  
 Gln Ala Pro Glu Val Asp Pro Cys Ile Ile Val Asn Glu Ala Lys Leu  
 450 455 460  
 Val Ser His Phe Gly Glu Arg Cys Phe Ile Glu Ile Thr Gly Thr Ala  
 465 470 475 480  
 Gly Tyr Asp Leu Val Gly Arg Val Val Lys Lys Ser Gln Asn Gln Ala  
 485 490 495  
 Leu Leu Lys Thr Ser Lys Ala  
 500

&lt;210&gt;264

&lt;211&gt;179

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;264

Ala Thr Ser Thr Val Cys Ala Leu Trp Ile Leu Gln Thr Tyr Gln Ser  
 1 5 10 15  
 His Asp Asp Ala Ala Ser Cys Ser Phe Arg Arg Ala Cys Arg Phe Gly  
 20 25 30  
 Arg Tyr Trp Leu Gly Gly Val Asn Val Pro Trp Asn Lys Phe Asn Gln  
 35 40 45  
 Thr Ser Thr Gln Ser Thr Val Ile Asn Ser Ala Ile Tyr Ile Asp Ser  
 50 55 60  
 Ser Gln Thr Trp Met Met Arg Phe Gln Ala Ser Ala Ser Ile Pro Arg  
 65 70 75 80  
 Leu Phe Arg Ile Ser Ile Phe Met Thr Lys His Gly Asp Trp Ile Asp  
 85 90 95  
 Asn Gly Thr Gly Glu Leu Leu Leu Val Ala Tyr Glu Ala Asn Gln  
 100 105 110  
 Asn Pro Leu Phe Pro Asp Ile Arg Ile Glu Leu Ala Met Ser Thr Cys  
 115 120 125

Ser Gly Thr Ser Tyr Tyr Arg Ala Arg Pro Met Gln Trp Leu Cys Ser  
 130 135 140  
 Thr Tyr Tyr Ala Val Arg Pro Gly Tyr Phe Val Leu Glu Asn Arg Ser  
 145 150 155 160  
 Tyr Ser Phe Arg Val Gln Ser Phe Ser Trp Asn Ile Ala Thr Leu Pro  
 165 170 175  
 Phe Val Asn

&lt;210&gt;265

&lt;211&gt;175

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;265

Phe Cys Gly Gly Arg Leu Met Ser Ser Ser Ile Pro Thr Thr Gln Lys  
 1 5 10 15  
 Ile Thr Ile Ser Ile Pro Thr Phe Val Arg Phe Asn Ile Glu Ser Ile  
 20 25 30  
 Asn Leu Thr Asp Glu Gln Lys Lys Thr Ala Leu Thr Ile Gly Gln Asn  
 35 40 45  
 Ile Ala Thr Glu Asn Thr Gln Val Leu Gly Asn Phe Val Asp Ala Asp  
 50 55 60  
 Gly Gly Leu Ile Cys Gln Asn Asp Leu Ser Val Gly Gly Asn Ile Asn  
 65 70 75 80  
 Ile Thr Pro Gln Thr Phe Asn Thr Met Val Phe Asn Gly Arg Val Asn  
 85 90 95  
 Leu Ser Asn Ser Pro Phe Ser Tyr Gln Asp Ser Leu Gly Asn Lys Arg  
 100 105 110  
 Gln Asp Tyr Ala Asn Ile Asn Thr Glu Gln Pro Gln Gln Tyr Val Pro  
 115 120 125  
 Tyr Gly Tyr Tyr Lys Leu Thr Arg Val Met Met Met Gln Arg Ala Ala  
 130 135 140  
 Leu Ser Gly Gly His Val Gly Ser Gly Asp Ile Gly Trp Gly Glu Ser  
 145 150 155 160  
 Met Tyr Leu Gly Ile Ser Ser Ile Lys Arg Gln His Lys Val Gln  
 165 170 175

&lt;210&gt;266

&lt;211&gt;264

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;266

Ile Pro Met Lys Thr Leu Gly Val Lys Asp Gln Asn Leu Phe Ile Asp  
 1 5 10 15  
 Gln Ala Thr Leu Ser Val Glu Arg Asn Val Arg Ile Glu Asn Asn Leu  
 20 25 30  
 Glu Thr Arg Asp Leu Lys Val Leu Asp Thr Thr Thr Ser Pro Cys Glu  
 35 40 45  
 Phe Ile Val Lys Gly Asn Val Ser Ala Glu Gly Ser Gln Leu Asn Ala  
 50 55 60  
 Thr Thr Leu Ser Asp Gly Phe Asn Ile Tyr Ser Lys Thr Asp Val Ser  
 65 70 75 80  
 Gln Thr Pro Val Cys Asn Asn Ile Ser Asp Pro Gln Ser Ala Arg Asp  
 85 90 95  
 Ala Leu Thr Phe Ser Tyr Tyr Arg Lys Thr Gly Cys Gln Ala Ala Asn  
 100 105 110  
 Leu Tyr Thr Tyr Tyr Pro Gly Asn Gly Tyr Tyr Val Ala Pro Asn Thr  
 115 120 125  
 Thr Ile Glu Thr His Val Ala Ala Ile Thr Ser Lys Ser Val Ser Arg  
 130 135 140  
 Asn Ala Thr Pro Asp Phe Ser Arg Tyr Ala Asp Ile Glu Pro Val Val  
 145 150 155 160  
 Lys Leu Lys Gln Val Gly Ile Tyr Gln Val Thr Met Gln Leu Thr Arg  
 165 170 175  
 Trp Ser Gly Gln His Asp Gly Asp Asn Ser Ala Thr Leu Ile Leu Asn  
 180 185 190



Phe Val Ser Gly Asn Asn Lys Thr Leu Leu Cys Thr Ser Asp Thr Arg  
 195 200 205  
 Gly Gly Tyr Ser Ser Asp Arg Thr Ser Val Ala Val Thr Ala Ile Phe  
 210 215 220  
 Ser Val Thr Glu Leu Val Ser Ser Pro Pro Tyr Asp Tyr Pro Trp Ile  
 225 230 235 240  
 Asn Leu Glu Ser Thr Ile Trp Met Asn Leu Met Ser Leu Ser Thr Cys  
 245 250 255  
 Gly His Leu Val Ser Ile Ser Ile  
 260

&lt;210&gt;267

&lt;211&gt;285

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;267

Thr Leu Leu Lys Val Ile Met Lys Asn Asn Ile Asn Asn Asn Glu Cys  
 1 5 10 15  
 Tyr Phe Lys Leu Asp Ser Thr Val Asp Gly Asp Leu Leu Ala Ala Asn  
 20 25 30  
 Leu Lys Thr Phe Asp Thr Gln Ala Gln Gly Ile Ser Ser Thr Glu Thr  
 35 40 45  
 Phe Ser Val Gln Gly Asn Ala Thr Phe Lys Asp Gln Val Ser Ala Thr  
 50 55 60  
 Gly Leu Thr Ser Gly Thr Thr Tyr Asn Leu Asn Ala Gln Asn Phe Thr  
 65 70 75 80  
 Ser Ser Gln Ile Ser Ile Asp Phe Lys Asn Asn Arg Leu Ser Asn Cys  
 85 90 95  
 Ala Leu Pro Lys Glu Asp Cys Asp Pro Val Pro Ala Asn Tyr Val Arg  
 100 105 110  
 Ser Pro Glu Tyr Phe Phe Cys Ser Lys Pro Leu Ile Gly Asp Phe Asp  
 115 120 125  
 Phe Asn Ser Gly Glu Ser Tyr Leu Pro Leu Thr Gly Ser Glu Tyr Thr  
 130 135 140  
 Leu Tyr Gln Ser Arg Asn Val Asn Ser Ile Phe Arg Phe Ile Gly Trp  
 145 150 155 160  
 Lys Gln Ser Thr Arg Glu Leu Thr Val Gly Gly Asn Thr Ala Ile Gln  
 165 170 175  
 Phe Leu Ala Ala Gly Thr Tyr Ile Val Ser Phe Thr Val Gly Lys Arg  
 180 185 190  
 Trp Gly Trp Asn Asn Gly Trp Gly Gly Ala Ile Tyr Ile Asn Asn Gly  
 195 200 205  
 Leu Gly Gln Val Gln Cys Glu Ser Thr Ile Tyr Ser Gly Gly Gly Tyr  
 210 215 220  
 Ala Thr Ile Gly Thr Leu Gly Thr Ser Ile Tyr Arg Ala Ser Val Asp  
 225 230 235 240  
 Val Ala Pro Asn Pro Asn Asp Pro Asn Ala Ser Asp Arg Tyr Arg Ala  
 245 250 255  
 Gly Ile Phe Tyr Leu Ser Asn Gly Gly Ser Ser Ala Gly Ile Gly Asn  
 260 265 270  
 Tyr Ser Phe Ser Leu Leu Tyr Tyr Pro Asp Asp Arg Gly  
 275 280 285

&lt;210&gt;268

&lt;211&gt;295

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;268

Phe Cys Gly Gly Arg Leu Met Ser Asn Pro Thr Pro Lys Thr Lys Ile  
 1 5 10 15  
 Ser Ile Pro Thr Phe Val Arg Phe Asn Ile Gln Ser Ile Asn Leu Thr  
 20 25 30  
 Glu Asp Gln Lys Lys Thr Thr Phe Thr Val Gly Gly Lys Val Thr Thr  
 35 40 45  
 Glu Asn Thr Val Val Arg Gly Asp Leu Thr Cys Thr Asp Gly Gly Leu  
 50 55 60

Thr Cys Gln Ser Asp Leu Thr Ile Gln Lys Asp Ile Asn Ile Arg Pro  
 65 70 75 80  
 Thr Ser Thr Asn Ser Met Val Phe Asp Gly Arg Leu Asn Leu Ser Asn  
 85 90 95  
 Ser Pro Leu Ser Tyr Lys Asn Ser Gln Gly Gln Asp Ile Thr Asp Tyr  
 100 105 110  
 Glu Lys Met Ser Ser Gly Lys Pro Gln Glu Tyr Val Pro Phe Gly Tyr  
 115 120 125  
 Tyr Lys Arg Thr Gln Ile Met Met Ala Gln Arg Ala Ala His Ser Ser  
 130 135 140  
 Gly Tyr Val Gly Gly Gly Ser Val Pro Ser Gly Ser Tyr Val Pro Trp  
 145 150 155 160  
 Asn Lys Phe Asp Gln Thr Ser Thr Gln Lys Thr Ser Gly Thr Glu Ile  
 165 170 175  
 Tyr Ile Asp Pro Asn Asp Ser Thr Lys Leu Val Phe Glu Val Asn Asn  
 180 185 190  
 Lys Val Pro Lys Leu Phe Arg Ile Ser Val Ile Met Ala Lys His Gly  
 195 200 205  
 Ser Trp Leu Asp Asn Gly Thr Gly Ala Asp Ile Leu Leu Ala Ala Asn  
 210 215 220  
 Glu Tyr Glu Gln Gly Gly Gly Arg Ile Asn Val Thr Asp Leu Ala Met  
 225 230 235 240  
 Thr Thr Ser Arg Gly Ser Ser Tyr Tyr Glu Thr Arg Pro Leu Gln Val  
 245 250 255  
 Val Cys Val Thr Tyr Tyr Ala Gln Asn Asn Gly Tyr Phe Thr Phe Gln  
 260 265 270  
 Asn Arg Ala Gly Gly Gly Leu Arg Val Ser Phe Phe Ser Trp Asn Ile  
 275 280 285  
 Val Ala Leu Pro Tyr Val Glu  
 290 295

&lt;210&gt;269

&lt;211&gt;290

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;269

Gly Val Val Met Lys Arg Arg Asn Leu Gln Lys Ile Leu Pro Asn Ala  
 1 5 10 15  
 Ser Thr Pro Ser Thr Asn Val Ala Glu Asn Thr Gly Ile Lys Asp Gln  
 20 25 30  
 Asn Leu Phe Leu Asp Gln Ala Thr Leu Asn Val Asp Gly Asn Val Asp  
 35 40 45  
 Ile Glu Asn Phe Leu Glu Thr Arg Asp Leu Lys Val Ala Asp Thr Ile  
 50 55 60  
 Thr Ser Pro Cys Glu Phe Thr Val Gly Gly Gly Leu Ser Ala Glu Ser  
 65 70 75 80  
 Ser Gln Phe Lys Ala Thr Thr Leu Ser Lys Gly Leu Glu Ile Thr Ser  
 85 90 95  
 Glu Asp Gln Asp Gly Arg Val Pro Lys Phe Thr Asn Val Ser Asp Pro  
 100 105 110  
 Gln Ser Pro Arg Asp Ala Leu Thr Tyr Asn Tyr Tyr Arg Asn Thr Gly  
 115 120 125  
 Cys Gln Ala Leu Asn Leu Tyr Thr Tyr Tyr Ser Ser Ser Gln Pro Thr  
 130 135 140  
 Thr Val Gly Lys Pro Ile Glu Thr Val Cys Gln Asn Pro Asn Pro Glu  
 145 150 155 160  
 Thr Tyr Arg Ile Ser Ala Ser Ala Lys Ile Tyr Asp Ala Val Thr Arg  
 165 170 175  
 Phe Pro Tyr Ile Gln Phe Lys Ala Pro Gly Ile Tyr Gln Val Thr Ile  
 180 185 190  
 Gln Ile Arg Arg Glu Ser Gly Gln His Ser Gly Leu Asp Asn Pro Asn  
 195 200 205  
 Leu Tyr Leu Asn Leu Met Ile Gly Asn Asn Lys Thr Leu Leu Cys Ala  
 210 215 220  
 Ser Asp Thr Arg Gly Tyr Ser Gly Gly His Arg Thr Ser Ile Ala Val

225 230 235 240  
 Thr Gly Thr Phe Thr Leu Thr Glu Ile Val Ala Thr Pro Pro His Asp  
 245 250 255  
 Tyr Pro Trp Leu Phe Leu Glu Thr Thr Ile Gly Leu Asp Ile Lys Ser  
 260 265 270  
 Met Ser Thr Cys Val Ile Trp Phe Pro Phe Gln Ala Asn Phe Ala Glu  
 275 280 285

Val Asp

290

<210>270

<211>134

<212>PRT

<213>Chlamydia pneumoniae

<400>270

Cys Phe Ser Phe Cys Arg Leu Gly Ser Lys Phe Glu Lys Ile Thr Leu  
 1 5 10 15  
 Gly Gly Asn Thr Ala Ile Gln Leu Leu Ala Ala Gly Thr Tyr Ile Leu  
 20 25 30  
 Thr Phe Thr Ile Gly Lys Arg Trp Gly Trp Asn Asn Gly Trp Gly Gly  
 35 40 45  
 Ser Ile Arg Leu Phe Glu Gly Lys Tyr Thr Gly Asp Gly Thr Met Leu  
 50 55 60  
 Cys Gly Ser Thr Val Tyr Ser Gly Gly Gly Tyr Ser Thr Ile Gly Tyr  
 65 70 75 80  
 Leu Ser Thr Ala Val Tyr Arg Asp His Ser Asp Ile Asp Pro Asp Pro  
 85 90 95  
 Asn Asn Pro Ser Asp Lys Tyr Met Asn Asn Phe Leu Phe Val Arg Asn  
 100 105 110  
 Gly Asp His Ser Ala Val Ile Gly Asn Tyr Ser Phe Thr Leu Leu Tyr  
 115 120 125  
 Phe Ala Gly Asp Lys Val  
 130

<210>271

<211>197

<212>PRT

<213>Chlamydia pneumoniae

<400>271

Ile Tyr Phe Val Phe Lys Arg Lys Thr Tyr Asn Tyr Phe Ile Glu Met  
 1 5 10 15  
 Thr Thr Thr Asn Asn Gln Asp Asn Asn Glu Cys Tyr Phe Lys Leu Asp  
 20 25 30  
 Ser Thr Val Asp Gly Asp Leu Leu Ala Ser Asn Ile Gln Thr Phe Asp  
 35 40 45  
 Lys Gln Ala Lys Gly Ile Ser Ser Thr Glu Thr Phe Ser Val Gln Gly  
 50 55 60  
 Asn Ala Thr Phe Lys Glu Lys Val Ser Ala Thr Gly Leu Thr Ser Ala  
 65 70 75 80  
 Ser Thr Tyr Lys Leu Asn Ala Thr Gly Pro Ala Pro Ser Ser Ile Thr  
 85 90 95  
 Ile Asp Met Lys Asn Asn Arg Leu Ser Asn Pro Ala Leu Pro Lys Asn  
 100 105 110  
 Pro Cys Asp Pro Val Pro Ala Asn Tyr Val Arg Ser Pro Gln Tyr Phe  
 115 120 125  
 Phe Cys Ala Lys Pro Ile Glu Gly Thr Phe Met Phe Asp Gly Ser Ser  
 130 135 140  
 Arg Tyr Leu Pro Ile Thr Gly Asp Gly Ser Asn Tyr Thr Leu Tyr Gln  
 145 150 155 160  
 Ser Ser Lys Ala Gly Asp Val Phe Arg Phe Val Asp Trp Asp Gln Asn  
 165 170 175  
 Ser Lys Lys Leu His Leu Gly Gly Thr Gln Pro Tyr Asn Phe Leu Leu  
 180 185 190  
 Gln Glu Pro Ile Ser  
 195

<210>272

&lt;211&gt;181

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;272

Ala Tyr Leu Asp Phe Ser Lys Arg Ser Cys Val Glu Glu Asp His Val  
 1 5 10 15  
 Ser Lys Lys Ile Asn Arg Asn Asp Leu Cys Pro Cys Gly Ser Asn Lys  
 20 25 30  
 Lys Tyr Lys Lys Cys Cys Leu Lys Lys Glu Glu Gln Thr Ala Arg Tyr  
 35 40 45  
 Thr Thr Glu Gly Lys Phe Lys Phe Ser Ala Glu Val Leu Ser Ala Ser  
 50 55 60  
 Glu Gln Gly Glu Ala Gly Asp Asn Cys Thr Lys Leu Phe Gln Arg Leu  
 65 70 75 80  
 Ser Gln Ser Leu Thr Ser Glu Gln Lys Ala Val Gly Lys Phe His  
 85 90 95  
 Gln Ile Thr Lys Asn Lys Glu Val Met Ser Lys Lys Ala Leu Lys Lys  
 100 105 110  
 Ala Gln Ala Lys Glu Glu Lys Leu Val Thr Glu Lys Leu Gln Gln His  
 115 120 125  
 Asn Phe Glu Ile Leu Asn Thr Gly Glu Asn Leu Ala Pro Pro Met Glu  
 130 135 140  
 Ser Thr Ala Thr Leu Asn Gln Asp Thr Asn Phe Val Cys Glu Asp Phe  
 145 150 155 160  
 Ile Pro Thr Gln Glu Asp Phe Arg Ile Ser Glu Asn Ser Gln Lys Pro  
 165 170 175  
 Pro Val Glu Glu Asp  
 180

&lt;210&gt;273

&lt;211&gt;206

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;273

Met Ser Thr Leu Leu Leu Asn Pro Pro Trp Met Lys Ala Gly Lys Arg  
 1 5 10 15  
 Ile Glu Ser Leu Val Arg Lys Ala Leu Tyr Thr His Thr Met Leu Ala  
 20 25 30  
 Asn His Arg Lys Ile Val Val Ala Leu Ser Gly Gly Lys Asp Ser Leu  
 35 40 45  
 Thr Leu Leu Leu Met Leu Lys Ala Ile Ser Gly Arg Gly Phe Pro Asp  
 50 55 60  
 Leu Asp Leu His Ala Val Asn Ile Gly Gly Lys Tyr Ser Cys Gly Ala  
 65 70 75 80  
 Glu Val Asn Lys Pro Tyr Leu Thr Arg Ile Cys Asp Gln Leu Cys Ile  
 85 90 95  
 Pro Phe Arg Thr Ile Pro Ser Pro Tyr Ala Pro Glu Thr Pro Glu Cys  
 100 105 110  
 Tyr Pro Cys Ser Gln Ala Arg Arg Leu Leu Phe Gln Ala Ala Lys  
 115 120 125  
 Glu Ile Gly Ala Ser Ala Ile Ala Phe Gly His His Arg Asp Asp Leu  
 130 135 140  
 Val Gln Thr Ala Leu Leu Asn Leu Leu His Lys Ala Glu Phe Ala Gly  
 145 150 155 160  
 Met Leu Pro Val Leu Asp Met Val His Phe Gly Val Thr Ile Leu Arg  
 165 170 175  
 Pro Leu Ile Phe Thr Pro Glu Phe Trp Ile Arg Lys Phe Ala Lys Glu  
 180 185 190  
 Asn Ala Ser Gln Glu Ser Leu Ala Val Val Pro Trp Phe His  
 195 200 205

&lt;210&gt;274

&lt;211&gt;281

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;274

Leu Val Leu Met Asn Lys Arg Leu Lys Ile Ile Leu Thr Asn Asp Asp  
 1 5 10 15  
 Gly Ile Thr Ala Lys Gly Met Ser Cys Leu Val Ser Ala Leu Leu Glu  
 20 25 30  
 Ala Asn Ile Gly Asp Ile Tyr Ile Ala Ala Pro Gln Ala Glu Gln Ser  
 35 40 45  
 Gly Lys Ser Met Ala Ile Ser Leu Asn Gln Val Val Cys Ala Ser Pro  
 50 55 60  
 Tyr Ala Tyr Pro Gln Pro Val Lys Glu Ala Trp Ala Val Gly Gly Ser  
 65 70 75 80  
 Pro Thr Asp Cys Val Arg Leu Gly Leu Arg Thr Leu Phe Glu Ser Val  
 85 90 95  
 Ser Pro Asp Leu Val Ile Ser Gly Ile Asn Cys Gly Asn Asn Ile Cys  
 100 105 110  
 Lys Asn Ala Trp Tyr Ser Gly Thr Ile Gly Ala Ala Lys Gln Ala Leu  
 115 120 125  
 Val Asp Gly Ile Pro Ser Met Ala Leu Ser Gln Asp Asn His Ile Ser  
 130 135 140  
 Phe Phe Gln Gln Asp Lys Ala Pro Glu Ile Leu Lys Ala Leu Val Ile  
 145 150 155 160  
 Tyr Leu Leu Ser Gln Pro Phe Pro Cys Leu Thr Gly Leu Asn Ile Asn  
 165 170 175  
 Phe Pro Thr Ser Pro Gly Gly Ser Ser Trp Glu Gly Met Arg Leu Val  
 180 185 190  
 Pro Pro Gly Asp Glu Phe Phe Tyr Glu Glu Pro Gln Tyr Leu Gly Ser  
 195 200 205  
 Val Asn Lys Asn Gln Tyr Tyr Val Gly Lys Ile Ser Gly Val Arg Ile  
 210 215 220  
 Gly Glu His Pro Ser Glu Glu Leu Ala Cys Met Leu Glu Asn His Ile  
 225 230 235 240  
 Ser Val Ser Pro Ile Phe Ser Gln Asn Ser Pro Ile Gly Leu Met Thr  
 245 250 255  
 Leu Glu Glu Phe Gln Lys Thr Gln Glu Asn Phe Asn Ala Ser Leu Leu  
 260 265 270  
 Ser Ser Glu Leu Thr Thr Lys Ile Phe  
 275 280

&lt;210&gt;275

&lt;211&gt;313

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;275

Leu Arg Val Arg Pro Pro Ser Leu Ala Lys Tyr Ala Phe Arg Gly Phe  
 1 5 10 15  
 Arg Met Ser His Gly Pro Arg Pro Thr Lys Phe Ser Phe Pro Leu Tyr  
 20 25 30  
 Phe Ser Lys Thr Leu Ser Trp Phe Ile Leu Gly Gly Phe Leu Ala Ala  
 35 40 45  
 Cys Gly Val Gln Met Val Leu Val Pro Asn Glu Leu Ile Asp Gly Gly  
 50 55 60  
 Ile Val Gly Leu Ser Ile Ile Ala Ser His Phe Leu Gly His Lys Ala  
 65 70 75 80  
 Leu Pro Phe Cys Leu Val Leu Phe Asn Leu Pro Phe Val Phe Leu Ala  
 85 90 95  
 Phe Lys Gln Ile Gly Lys Tyr Phe Val Ile Gln Met Leu Thr Ala Val  
 100 105 110  
 Ile Ile Phe Ser Cys Ser Leu Trp Leu Ile Asp Gln Leu Pro Ser Trp  
 115 120 125  
 Leu Gly Met Ser Pro Phe Val Phe Lys Gly Ser Glu Met Glu Thr Val  
 130 135 140  
 Val Leu Gly Gly Ala Ile Ile Gly Val Gly Cys Gly Leu Ile Ile Arg  
 145 150 155 160  
 His Gly Gly Ser Thr Asp Gly Thr Glu Ile Leu Gly Ile Ile Ile Asn  
 165 170 175  
 Lys Lys Lys Gly Tyr Thr Val Gly Gln Ile Ile Leu Phe Val Asn Phe

180 185 190  
 Phe Ile Phe Ala Leu Ser Gly Ile Val Tyr Lys Asn Trp His Thr Ala  
 195 200 205  
 Phe Val Ser Phe Leu Thr Tyr Gly Ile Ala Thr Lys Val Met Asp Met  
 210 215 220  
 Val Ile Leu Gly Leu Glu Asp Thr Lys Ser Val Thr Ile Ile Thr Ser  
 225 230 235 240  
 Ser Pro Arg Lys Leu Gly His Ile Leu Met Glu Thr Leu Gly Ile Gly  
 245 250 255  
 Leu Thr Tyr Ile His Ala Glu Gly Gly Tyr Ser Gly Glu Pro Arg Asn  
 260 265 270  
 Leu Leu Tyr Val Val Val Glu Arg Leu Gln Leu Ser Gln Leu Lys Glu  
 275 280 285  
 Ile Val His Arg Glu Asp Pro Ser Ala Phe Ile Ala Ile Glu Asn Leu  
 290 295 300  
 His Glu Val Ile Asn Gly Arg Arg Thr  
 305 310

&lt;210&gt;276

&lt;211&gt;192

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;276

Met Lys Arg Tyr Val Val Gly Ile Ser Gly Ala Ser Gly Val Ile Leu  
 1 5 10 15  
 Ala Val Lys Leu Ile Lys Glu Leu Val Asn Ala Lys His Gln Val Glu  
 20 25 30  
 Val Ile Ile Ser Pro Ser Gly Arg Lys Thr Leu Tyr Tyr Glu Leu Gly  
 35 40 45  
 Cys Gln Ser Phe Asp Ala Leu Phe Ser Glu Glu Asn Leu Glu Tyr Ile  
 50 55 60  
 His Thr His Ser Ile Gln Ala Ile Glu Ser Ser Leu Ala Ser Gly Ser  
 65 70 75 80  
 Cys Pro Val Glu Ala Thr Ile Ile Ile Pro Cys Ser Met Thr Thr Val  
 85 90 95  
 Ala Ala Ile Ser Ile Gly Leu Ala Asp Asn Leu Leu Arg Arg Val Ala  
 100 105 110  
 Asp Val Ala Leu Lys Glu Arg Arg Pro Leu Ile Leu Val Pro Arg Glu  
 115 120 125  
 Thr Pro Leu His Thr Ile His Leu Glu Asn Leu Leu Lys Leu Ser Lys  
 130 135 140  
 Ser Gly Ala Thr Ile Phe Pro Pro Met Pro Met Trp Tyr Phe Lys Pro  
 145 150 155 160  
 Gln Ser Val Glu Asp Leu Glu Asn Ala Leu Val Gly Lys Ile Leu Ala  
 165 170 175  
 Tyr Leu Asn Ile Pro Ser Asp Leu Thr Lys Gln Trp Ser Asn Pro Glu  
 180 185 190

&lt;210&gt;277

&lt;211&gt;296

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;277

Val Arg Leu Asn Tyr Phe Leu Asn Leu Val Asn Phe Lys Tyr Ser Ile  
 1 5 10 15  
 Phe Ser Ile Leu Phe Leu Ser Ala Ser Thr Val Phe Ala Leu Ser Ile  
 20 25 30  
 Asn Glu Ile Ser Gln Asn Leu Ser Phe Lys Glu Gly Phe Lys Ile Ser  
 35 40 45  
 Val Phe Gly Ala Ile Ala Phe Val Phe Ala Arg Thr Thr Gly Ile Val  
 50 55 60  
 Val Asn Gln Cys Ile Asp Arg Phe Ile Asp Lys Lys Asn Thr Arg Thr  
 65 70 75 80  
 Ser Lys Arg Val Leu Pro Ala Asn Leu Val Ser Leu Asn Phe Ala Trp  
 85 90 95  
 Val Leu Ser Leu Phe Cys Ser Phe Leu Phe Leu Phe Leu Cys Lys Ile

100 105 110  
 Leu Arg Ile Phe Ser Leu Gly Ile Ala Ser Leu Thr Leu Met Ile Val  
 115 120 125  
 Tyr Pro Tyr Met Lys Arg Val Thr Phe Phe Cys His Trp Gly Leu Gly  
 130 135 140  
 Leu Val Tyr Thr Val Ala Ile Leu Met Asn Phe Cys Ala Phe Ala Glu  
 145 150 155 160  
 Ser Gly Leu Ser Met Arg Leu Cys Phe Leu Ala Leu Leu Trp Gly Gly  
 165 170 175  
 Ser Val Gly Met Val Ile Ala Ala Asn Asp Ile Ile Tyr Ala Ile Glu  
 180 185 190  
 Asp Thr Glu Phe Asp Arg Glu Glu Gly Leu Arg Ser Val Pro Ala His  
 195 200 205  
 Tyr Gly Glu Lys Lys Ala Val Glu Ile Ala Lys Val Asn Leu Trp Val  
 210 215 220  
 Ser Tyr Leu Ala Tyr Ile Phe Ser Gly Phe Val Gly Ser Leu Asp Lys  
 225 230 235 240  
 Glu Phe Tyr Phe Thr Ala Ile Ile Pro Leu Val Val Ile Leu Lys Val  
 245 250 255  
 Val Arg Met Tyr Ser Asn Tyr Ser Lys Lys Asp Gln Glu Gly Glu Ser  
 260 265 270  
 Gln Ile Leu Phe Ser Glu Tyr Cys Asp Cys Ser Ile Val Ser Cys Lys  
 275 280 285  
 Tyr Asp Phe Val Leu Glu Phe Glu  
 290 295

&lt;210&gt;278

&lt;211&gt;232

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;278

Ile Met Ala Leu Asp Glu Ile Asn Asn Gln Asn Asn Pro Ser Gln Gln  
 1 5 10 15  
 Ile Ala Ser Ser Thr Ser Gln Thr Ser Lys Ile Asn Gln Asp Arg Lys  
 20 25 30  
 Thr Phe Ala Cys Thr Val Thr Leu Leu Val Val Ala Thr Leu Met Ile  
 35 40 45  
 Leu Ser Gly Ile Val Leu Leu Phe Thr Ile Gly Ser Leu Gly Leu Ser  
 50 55 60  
 Val Pro Leu Ser Gly Ile Leu Gly Thr Phe Ala Val Thr Val Gly Ala  
 65 70 75 80  
 Val Leu Phe Ile Thr Gly Leu Thr Ile Leu Val Arg Lys Ser Leu Gly  
 85 90 95  
 Ile Glu Gln Lys Asn Glu Asp Leu Asn Phe Leu Lys Ile Lys Thr Pro  
 100 105 110  
 Thr Pro Pro Ala Arg Pro Leu Met Ser Lys Phe Ser Val Thr Cys Ser  
 115 120 125  
 Thr Thr Ser Ile Val Leu Gly Met Ala Leu Leu Ile Gly Ala Val Val  
 130 135 140  
 Ser Val Phe Phe Leu Thr Gly Tyr Leu Gln Leu Gly Leu Cys Ala Gly  
 145 150 155 160  
 Leu Val Gly Leu Gly Thr Ala Leu Phe Val Ala Gly Leu Ala Arg Met  
 165 170 175  
 Ser Pro Arg Ser Leu Ala Asp Gln Glu Gly Ser Gly Ser Ala Asp Ser  
 180 185 190  
 Gln Ser Asn Ile Val Gly Ile Gly Glu Pro Lys Ala Ala Gln Glu Gln  
 195 200 205  
 Lys Trp Tyr Lys Met Ala Val Val Arg Gly Glu Asp Gly Ile Pro Thr  
 210 215 220  
 Ala Ile Arg Leu Thr Pro Glu Lys  
 225 230

&lt;210&gt;279

&lt;211&gt;263

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;279

Val Ser Ile Met Ser Leu Asn Lys Thr Asn Ala Leu Leu Asn Gln Pro  
 1 5 10 15  
 Glu Pro Ala Val Cys Leu Asn Ala Trp Asp Pro Lys Tyr Ile Asn Gln  
 20 25 30  
 Asp Arg Lys Thr Phe Ala Cys Thr Val Thr Leu Leu Val Ile Ala Thr  
 35 40 45  
 Leu Met Ile Leu Thr Thr Gly Val Ile Val Leu Leu Ala Met Gly Ser  
 50 55 60  
 Pro Gly Leu Ser Val Leu Val Ser Thr Ile Ile Gly Thr Ser Val Thr  
 65 70 75 80  
 Thr Leu Gly Thr Ala Leu Phe Ile Ile Gly Leu Val Lys Leu Ile Lys  
 85 90 95  
 Lys Ser Leu Ala Trp Ile Gln Tyr Gln Lys Tyr Phe Gln Glu Val Val  
 100 105 110  
 Lys Gln Lys Tyr Glu Pro Phe Ser Ile Pro Lys Asn Asp Asn Val His  
 115 120 125  
 Lys Leu Thr Ser Cys Leu Pro Ser Pro Leu Asp Ile Glu Ser Pro Ser  
 130 135 140  
 Pro Glu Ala Ser Thr Pro Val Ser Lys Leu Arg Ile Ala Cys Ser Gly  
 145 150 155 160  
 Val Ala Ile Val Leu Gly Val Thr Leu Leu Ile Gly Ala Val Val Ser  
 165 170 175  
 Val Phe Phe Cys Thr Gly Tyr Leu Gln Leu Ala Leu Cys Val Gly Phe  
 180 185 190  
 Ala Cys Leu Gly Thr Ala Leu Phe Val Gly Gly Leu Ala Gly Leu Arg  
 195 200 205  
 Thr His Ser Leu Ile Ala Gln Gly Ile Met Tyr Leu Tyr Leu Thr Tyr  
 210 215 220  
 Tyr Leu Ser Ser Ala Leu Glu Glu Arg Asn Glu Thr Val Lys Asp Gln  
 225 230 235 240  
 Arg Asn Glu Ile Asn Thr Tyr Leu Thr Glu Glu Cys Arg Gln Gln Lys  
 245 250 255  
 Arg Glu Lys Ala Leu Leu Glu  
 260

&lt;210&gt;280

&lt;211&gt;115

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;280

Asp Pro Cys Ser Ser Ser Trp Leu Phe Ser Ser Val Ser Gly Ser Arg  
 1 5 10 15  
 Ser Gly Ala Gly Arg Asp Val Gly Leu Asp Pro Glu Val Pro Gly Leu  
 20 25 30  
 Leu Ala Leu Phe Cys Ser Leu Gly Cys Pro Arg Arg Gly Leu Arg Ser  
 35 40 45  
 Ser Ile Pro Phe Ser Thr Phe Gly Val Asp Val Pro Gly Gly Leu Ala  
 50 55 60  
 Cys Ala Phe Ser Gly Ser Val Phe Gly Arg Thr Asn Gly Ser Tyr Ala  
 65 70 75 80  
 Asn Ile Asn Ser Ser Ser Glu Gly Ile Gly Asp Lys Gly Gly Val Gly  
 85 90 95  
 Phe Phe Gln Phe Gly Thr Lys Asp Phe Ile His Ser Gln Val Asp Val  
 100 105 110  
 Leu Leu Leu  
 115

&lt;210&gt;281

&lt;211&gt;331

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;281

Val Ala Phe Arg Cys Val Met Thr Ile Asp Met His Cys Asp Leu Leu  
 1 5 10 15  
 Ser His Pro His Phe Cys Arg Lys Asp Pro Ala Val Arg Cys Ser Pro



20 25 30  
 Glu Gln Leu Leu Ser Gly Gly Val Arg Gln Gln Val Cys Ala Ile Phe  
 35 40 45  
 Val Pro His Ser Arg Gly Glu Pro Asn Cys Asp Lys Gln Asn Ser Leu  
 50 55 60  
 Phe Phe Ser Leu Pro Asn Gln Tyr Pro Asp Ile Gly Leu Leu Ser Tyr  
 65 70 75 80  
 Glu Glu Glu Glu Asn Gly Ser Ser Ser Gln Lys Lys Ser Leu Ser Leu  
 85 90 95  
 Ile Arg Ser Ile Glu Asn Ala Ser Ala Leu Gly Asp Asp Thr Ala Pro  
 100 105 110  
 Leu Gly Thr Leu Leu Ala Lys Leu Ile His Leu Thr Lys Gln Gly Pro  
 115 120 125  
 Leu Ala Tyr Leu Gly Ile Val Trp Lys Gly Asp Asn Arg Phe Gly Gly  
 130 135 140  
 Gly Thr Glu Ala Pro Lys Arg Leu Ser Asn Asp Gly Lys Val Leu Leu  
 145 150 155 160  
 Asp Ile Met Tyr Glu Leu Gly Val Pro Ile Asp Leu Ser His Cys Ser  
 165 170 175  
 Asp Lys Leu Ala Glu Asp Ile Leu Asp Tyr Thr Ala Asp Lys Leu Pro  
 180 185 190  
 Asn Leu Ala Val Ile Ala Ser His Ser Asn Phe Arg Ser Val Leu Asp  
 195 200 205  
 His Arg Arg Asn Leu Val Asp Ala His Ala Lys Glu Ile Val Arg Arg  
 210 215 220  
 Lys Gly Val Ile Gly Leu Asn Leu Val Arg Ser Tyr Val Gly Asp Ser  
 225 230 235 240  
 Leu Gly Asp Leu Glu Lys His Val Leu His Ala Glu Asn Leu Gly Ile  
 245 250 255  
 Leu Ser Ser Ile Val Leu Gly Ser Asp Phe Phe Tyr Ala Asn Glu Asp  
 260 265 270  
 Glu Asn Phe Phe Phe Asn Glu Cys Ser Ser Ala Glu Ala His Pro Val  
 275 280 285  
 Leu Asn Gln Leu Ile His Arg Ile Phe Ser Lys Gly Lys Ala Glu Ser  
 290 295 300  
 Ile Leu Ser Ser Arg Ala Glu Lys Phe Leu Lys Gln Val Ile Val Glu  
 305 310 315 320  
 Gln Val Asn Pro Lys Ile Thr Asp Val Lys Leu  
 325 330

&lt;210&gt;282

&lt;211&gt;218

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;282

Arg Ile Glu Asn Ile Ser Gly Tyr Pro Leu Ser Pro Thr Ala Lys Lys  
 1 5 10 15  
 Leu Ala Gln Leu Phe Pro Gly Ala Ile Thr Leu Val Val Lys His Arg  
 20 25 30  
 Asn Pro Arg Phe Pro Lys Glu Thr Leu Ala Phe Arg Ile Val Asp His  
 35 40 45  
 Ser Val Val Arg Glu Ile Val Asp His Cys Gly Thr Leu Ile Gly Thr  
 50 55 60  
 Ser Ala Asn Leu Ser Glu Phe Pro Ser Ala Leu Thr Ala Gln Glu Ile  
 65 70 75 80  
 Phe Ala Asp Phe Ala Asp His Asp Leu Cys Ile Phe Asp Gly Pro Cys  
 85 90 95  
 Ser His Gly Leu Glu Ser Thr Val Val Ala Ser Asp Pro Leu Tyr Ile  
 100 105 110  
 Tyr Arg Glu Gly Leu Ile Ser Arg Ser Val Ile Glu Asn Ile Ala Gly  
 115 120 125  
 Thr Glu Ala Lys Ile Phe His Arg Thr Ser His Ala Phe Ser Lys His  
 130 135 140  
 Ile Lys Ile Tyr Thr Val Lys Asn Gln Glu Gln Leu Val Ser Phe Leu  
 145 150 155 160

Ser Gly Ser Leu Asp Phe Lys Gly Val Val Cys Glu His Pro Lys Pro  
                           165                          170                          175  
 Lys Asn Phe Tyr Thr Arg Leu Arg Glu Ala Leu Lys Lys Lys Thr Pro  
                           180                          185                          190  
 Ser Ile Val Phe Ile Tyr Asp Ile Asn Thr Ser Asp Tyr Pro Glu Leu  
                           195                          200                          205  
 Phe Pro Phe Leu Ser Pro Tyr Tyr Ile Glu  
                           210                          215

&lt;210&gt;283

&lt;211&gt;90

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;283

Ser Ile Phe Gly Val Ile Val Pro Asp Lys Lys Ala Gln Ile Thr Phe  
   1                          5                          10                          15  
 Ser Leu Pro Glu Val Met Ser Ala Ile His Gln Gly Lys Ile Val Ala  
                           20                          25                          30  
 Leu Pro Thr Asp Thr Val Tyr Gly Phe Val Leu Ser Leu Tyr Ala Ser  
                           35                          40                          45  
 Glu Ala Glu Glu Arg Leu Tyr Ala Leu Lys Asp Arg Glu Pro Ser Lys  
                           50                          55                          60  
 Ala Phe Ala Leu Tyr Val Asn Ser Ile Glu Glu Ser Lys Thr Phe Leu  
   65                          70                          75                          80  
 Val Ile Pro Tyr Leu Leu Gln Leu Arg Asn  
                           85                          90

&lt;210&gt;284

&lt;211&gt;243

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;284

Met Thr Asp Tyr Ser Phe Phe Arg Arg Lys Ile Gly Asn Ile Glu Ala  
   1                          5                          10                          15  
 Ile Glu Cys Pro Gly Asn Pro Gln Asp Pro Ile Ile Ile Leu Cys His  
                           20                          25                          30  
 Gly Tyr Gly Ser Leu Ala Asp Asn Leu Thr Phe Phe Pro Ser Ile Cys  
                           35                          40                          45  
 Ser Phe Ser Lys Leu Arg Pro Thr Trp Ile Phe Pro Asn Gly Ile Leu  
                           50                          55                          60  
 Pro Leu Glu Asn Asp Phe Arg Gly Ser Arg Ala Cys Phe Pro Leu Asn  
   65                          70                          75                          80  
 Val Leu Leu Leu Gln Glu Leu Ser Arg Leu Tyr Ala Asn Gly Val Gly  
                           85                          90                          95  
 Asn Leu Gln Glu Lys Tyr Asp Glu Leu Phe Asp Val Asp Leu Glu Thr  
                           100                          105                          110  
 Pro Lys Glu Ala Leu Glu Glu Leu Ile Leu Asn Leu Asn Arg Pro Tyr  
                           115                          120                          125  
 Asn Glu Ile Ile Ile Gly Gly Phe Ser Gln Gly Ala Ile Leu Ala Thr  
   130                          135                          140  
 His Leu Val Leu Thr Ser Gln Asn Pro Tyr Ala Gly Ala Leu Ile Phe  
  145                          150                          155                          160  
 Ala Gly Ala Arg Leu Phe Asn Gln Gly Trp Glu Glu Gly Leu Lys Gln  
                           165                          170                          175  
 Cys Ala Gln Val Pro Phe Leu Gln Ser His Gly Tyr Glu Asp Glu Ile  
                           180                          185                          190  
 Leu Pro Tyr His Leu Gly Ala His Leu Asn Asp Leu Leu Leu Thr Lys  
                           195                          200                          205  
 Leu Asn Gly Gln Phe Val Ser Phe His Gly Gly His Glu Ile Pro Ser  
                           210                          215                          220  
 Val Val Phe Gln Lys Met Gln Val Thr Val Pro Asn Trp Ile Asp Pro  
  225                          230                          235                          240  
 Ala Arg Gly

&lt;210&gt;285

&lt;211&gt;274

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;285

Phe Asn Arg Gln Ser Asp Ala Thr Tyr Ala Thr Trp Val Met His Leu  
 1 5 10 15  
 Glu Glu Glu Asn Gln Gly Trp Glu Ala Leu Leu Arg Lys Val Tyr His  
 20 25 30  
 Gln Glu Val Pro Pro Ala Ile Leu His Gly Phe Thr Leu Pro Val  
 35 40 45  
 Leu Gln Asp Lys Ala Glu Gln Leu Ala Ser Glu Ile Leu Leu Ser Ser  
 50 55 60  
 Ser Pro Gly Ser Glu His Lys Val Ser Gln Lys Ile His Pro Asp Ile  
 65 70 75 80  
 Tyr Gln Phe Phe Pro Glu Gly Lys Gly Arg Leu His Ser Ile Asp Leu  
 85 90 95  
 Pro Arg Gly Ile Lys Lys Gln Ile Tyr Ile Ser Pro Phe Glu Ala Asn  
 100 105 110  
 Tyr Lys Ile Tyr Ile Ile His Glu Ala Asp Arg Met Thr Leu Ala Ala  
 115 120 125  
 Ile Ser Ala Phe Leu Lys Val Phe Glu Glu Pro Pro Lys His Ala Val  
 130 135 140  
 Ile Ile Leu Thr Thr Ala Lys Val Gln Arg Leu Pro Lys Thr Ile Ile  
 145 150 155 160  
 Ser Arg Ser Leu Ser Ile Phe Ile Glu Arg Gly Glu Lys Ile Leu Cys  
 165 170 175  
 Ser Lys Glu Thr Phe Ser Tyr Leu Phe Arg Tyr Ala Gln Cys Glu Ile  
 180 185 190  
 Pro Val Thr Glu Val Ser Gln Ile Ile Lys Glu Ser Ser Glu Thr Asp  
 195 200 205  
 Lys Gln Val Leu Arg Asp Lys Val Gln Arg Phe Met Glu Val Leu Leu  
 210 215 220  
 Glu Leu Tyr Arg Asp Arg Tyr Thr Leu Asn Leu Gly Leu Lys Ala Ser  
 225 230 235 240  
 Ala Leu Asn Tyr Pro Glu His Val Lys Glu Ile Leu Gln Leu Pro Leu  
 245 250 255  
 Leu Pro Leu Asp Lys Val Leu Leu Ile Val Glu Ser Ala Trp Ser Val  
 260 265 270  
 Ile Glu

&lt;210&gt;286

&lt;211&gt;209

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;286

Gly Ser Ile Val Phe Ile Val Ile Glu Gly Gly Glu Gly Ser Gly Lys  
 1 5 10 15  
 Ser Ser Leu Ala Lys Ala Leu Gly Asp Gln Leu Val Ala Gln Asp Arg  
 20 25 30  
 Lys Val Leu Leu Thr Arg Glu Pro Gly Gly Cys Leu Ile Gly Glu Arg  
 35 40 45  
 Leu Arg Asp Leu Ile Leu Glu Pro Pro His Leu Glu Leu Ser Arg Cys  
 50 55 60  
 Cys Glu Leu Phe Leu Phe Leu Gly Ser Arg Ala Gln His Ile Gln Glu  
 65 70 75 80  
 Val Ile Ile Pro Ala Leu Arg Asp Gly Tyr Ile Val Ile Cys Glu Arg  
 85 90 95  
 Phe His Asp Ser Thr Ile Val Tyr Gln Gly Ile Ala Glu Gly Leu Gly  
 100 105 110  
 Ala Asp Phe Val Ala Asp Leu Cys Ser Lys Val Val Gly Pro Thr Pro  
 115 120 125  
 Phe Leu Pro Asn Phe Val Leu Leu Asp Ile Pro Ala Asp Ile Gly  
 130 135 140  
 Leu Gln Arg Lys His Arg Gln Lys Val Phe Asp Lys Phe Glu Lys Lys  
 145 150 155 160

Pro Leu Ser Tyr His Asn Arg Ile Arg Glu Gly Phe Leu Ser Leu Ala  
                           165                          170                          175  
 Ser Ala Asp Pro Ser Arg Tyr Leu Val Leu Asp Ala Arg Glu Ser Leu  
                           180                          185                          190  
 Ala Ser Leu Ile Asp Lys Val Met Leu His Thr Gln Leu Gly Leu Cys  
                           195                          200                          205  
 Thr

&lt;210&gt;287

&lt;211&gt;834

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;287

Met Phe Asn Lys Asp Glu Ile Ile Val Pro Lys Asn Leu Glu Glu Glu  
   1                          5                          10                          15  
 Met Lys Glu Ser Tyr Leu Arg Tyr Ser Met Ser Val Ile Ile Ser Arg  
                           20                          25                          30  
 Ala Leu Pro Asp Ile Arg Asp Gly Leu Lys Pro Ser Gln Arg Arg Val  
                           35                          40                          45  
 Leu Tyr Ala Met Lys Gln Leu Ser Leu Ser Pro Gly Ala Lys His Arg  
                           50                          55                          60  
 Lys Cys Ala Lys Ile Cys Gly Asp Thr Ser Gly Asp Tyr His Pro His  
                           65                          70                          75                          80  
 Gly Glu Ser Val Ile Tyr Pro Thr Leu Val Arg Met Ala Gln Asn Trp  
                           85                          90                          95  
 Ala Met Arg Tyr Pro Leu Val Asp Gly Gln Gly Asn Phe Gly Ser Ile  
                           100                          105                          110  
 Asp Gly Asp Pro Pro Ala Ala Met Arg Tyr Thr Glu Ala Arg Leu Thr  
                           115                          120                          125  
 His Ser Ala Met Tyr Leu Met Glu Asp Leu Asp Lys Asp Thr Val Asp  
                           130                          135                          140  
 Ile Val Pro Asn Tyr Asp Glu Thr Lys His Glu Pro Val Val Phe Pro  
                           145                          150                          155                          160  
 Ser Lys Phe Pro Asn Leu Leu Cys Asn Gly Ser Ser Gly Ile Ala Val  
                           165                          170                          175  
 Gly Met Ala Thr Asn Ile Pro Pro His Asn Leu Gly Glu Leu Ile Glu  
                           180                          185                          190  
 Ala Thr Leu Leu Leu Ala Asn Pro Gln Ala Ser Val Asp Glu Ile  
                           195                          200                          205  
 Leu Gln Val Met Pro Gly Pro Asp Phe Pro Thr Gly Gly Ile Ile Cys  
                           210                          215                          220  
 Gly Ser Glu Gly Ile Arg Ser Thr Tyr Thr Thr Gly Arg Gly Lys Ile  
                           225                          230                          235                          240  
 Lys Val Arg Ala Arg Leu His Val Glu Glu Asn Glu Asp Lys His Arg  
                           245                          250                          255  
 Glu Ser Ile Ile Ile Thr Glu Met Pro Tyr Asn Val Asn Lys Ser Arg  
                           260                          265                          270  
 Leu Ile Glu Gln Ile Ala Asn Leu Val Asn Glu Lys Thr Leu Ala Gly  
                           275                          280                          285  
 Ile Ser Asp Val Arg Asp Glu Ser Asp Lys Asp Gly Ile Arg Val Val  
                           290                          295                          300  
 Leu Glu Ile Lys Lys Gly Glu Ser Ser Glu Ile Ile Ile Asn Arg Leu  
                           305                          310                          315                          320  
 Tyr Lys Phe Thr Asp Val Gln Val Thr Phe Gly Ala Asn Met Leu Ala  
                           325                          330                          335  
 Leu Asp Lys Asn Leu Pro Arg Thr Met Ser Ile His Arg Met Ile Ser  
                           340                          345                          350  
 Ala Trp Ile Arg His Arg Lys Glu Val Ile Arg Arg Arg Thr Arg Tyr  
                           355                          360                          365  
 Glu Leu Asn Lys Ala Glu Thr Arg Ala His Val Leu Glu Gly Tyr Leu  
                           370                          375                          380  
 Lys Ala Leu Ser Cys Leu Asp Ala Leu Val Lys Thr Ile Arg Glu Ser  
                           385                          390                          395                          400  
 Gly Asn Lys Glu His Ala Lys Glu Arg Ile Ile Glu Ser Phe Gly Phe

405 410 415  
 Thr Glu Pro Gln Ala Leu Ala Ile Leu Glu Leu Arg Leu Tyr Gln Leu  
 420 425 430  
 Thr Gly Leu Glu Ala Glu Lys Ile Gln Lys Glu Tyr Glu Glu Leu Leu  
 435 440 445  
 Asn Lys Ile Ala Tyr Tyr Lys Gln Val Leu Ser Asp Glu Gly Leu Val  
 450 455 460  
 Lys Asp Ile Ile Arg Asn Glu Leu Gln Asp Leu Leu Lys His His Lys  
 465 470 475 480  
 Val Ala Arg Arg Thr Thr Ile Glu Phe Asp Ala Asp Asp Ile Arg Asp  
 485 490 495  
 Ile Glu Asp Ile Ile Thr Asn Glu Ser Val Ile Ile Thr Ile Ser Gly  
 500 505 510  
 Asp Asp Tyr Val Lys Arg Met Pro Val Lys Val Phe Lys Glu Gln Arg  
 515 520 525  
 Arg Gly Gly His Gly Val Thr Gly Phe Asp Met Lys Lys Gly Ala Gly  
 530 535 540  
 Phe Leu Lys Ala Val Tyr Ser Ala Phe Thr Lys Asp Tyr Leu Leu Ile  
 545 550 555 560  
 Phe Thr Asn Phe Gly Gln Cys Tyr Trp Leu Lys Val Trp Gln Leu Pro  
 565 570 575  
 Glu Gly Glu Arg Arg Ala Lys Gly Lys Pro Ile Ile Asn Phe Leu Glu  
 580 585 590  
 Gly Ile Arg Pro Gly Glu Glu Leu Ala Ala Ile Leu Asn Ile Lys Asn  
 595 600 605  
 Phe Asp Asn Ala Gly Phe Leu Phe Leu Ala Thr Lys Arg Gly Val Val  
 610 615 620  
 Lys Lys Val Ser Leu Asp Ala Phe Ser Asn Pro Arg Lys Lys Gly Ile  
 625 630 635 640  
 Arg Ala Leu Glu Ile Asp Glu Gly Asp Glu Leu Ile Ala Ala Cys His  
 645 650 655  
 Ile Val Ser Asp Glu Glu Lys Val Met Leu Phe Thr His Leu Gly Met  
 660 665 670  
 Ala Val Arg Phe Pro His Glu Lys Val Arg Pro Met Gly Arg Thr Ala  
 675 680 685  
 Arg Gly Val Arg Gly Val Ser Leu Lys Asn Glu Glu Asp Lys Val Val  
 690 695 700  
 Ser Cys Gln Ile Val Thr Glu Asn Gln Ser Val Leu Ile Val Cys Asp  
 705 710 715 720  
 Gln Gly Phe Gly Lys Arg Ser Leu Val Glu Asp Phe Arg Glu Thr Asn  
 725 730 735  
 Arg Gly Gly Val Gly Val Arg Ser Ile Leu Ile Asn Glu Arg Asn Gly  
 740 745 750  
 Asn Val Leu Gly Ala Ile Pro Val Thr Asp His Asp Ser Ile Leu Leu  
 755 760 765  
 Met Ser Ser Gln Gly Gln Ala Ile Arg Ile Asn Met Gln Asp Val Arg  
 770 775 780  
 Val Met Gly Arg Ser Thr Gln Gly Val Arg Leu Val His Leu Lys Glu  
 785 790 795 800  
 Gly Asp Ala Leu Val Ser Met Glu Lys Leu Ser Ser Asn Glu Asn Asp  
 805 810 815  
 Asp Glu Val Leu Ser Gly Ser Glu Glu Cys Ser Asp Thr Val Ser  
 820 825 830  
 Leu Arg

&lt;210&gt;288

&lt;211&gt;789

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;288

Lys Gly Tyr Lys Leu Phe Val Ser Ala Pro Gly Cys Thr Leu Glu Ile  
 1 5 10 15  
 Arg Glu Ser Arg Val Phe Ile His Leu Val Tyr Glu Val Val Asp Asn  
 20 25 30

Ser Ile Asp Glu Ala Met Ala Gly Tyr Cys Ser Arg Ile Asp Val Arg  
 35 40 45  
 Ile Leu Glu Asp Gly Gly Ile Val Ile Val Asp Asn Gly Arg Gly Ile  
 50 55 60  
 Pro Ile Glu Val His Glu Arg Glu Ser Ala Lys Gln Gly Arg Glu Val  
 65 70 75 80  
 Ser Ala Leu Glu Val Val Leu Thr Val Leu His Ala Gly Gly Lys Phe  
 85 90 95  
 Asp Lys Asp Ser Tyr Lys Val Ser Gly Gly Leu His Gly Val Gly Val  
 100 105 110  
 Ser Cys Val Asn Ala Leu Ser Glu Lys Leu Val Ala Thr Val Phe Lys  
 115 120 125  
 Asp Lys Lys Cys Tyr Gln Met Glu Phe Ser Arg Gly Ile Pro Val Thr  
 130 135 140  
 Pro Leu Gln Tyr Val Ser Val Ser Asp Arg Gln Gly Thr Glu Ile Val  
 145 150 155 160  
 Phe Tyr Pro Asp Pro Lys Ile Phe Ser Thr Cys Thr Phe Asp Arg Ser  
 165 170 175  
 Ile Leu Met Lys Arg Leu Arg Glu Leu Ala Phe Leu Asn Arg Gly Ile  
 180 185 190  
 Thr Ile Val Phe Glu Asp Asp Arg Asp Val Ser Phe Asp Lys Val Thr  
 195 200 205  
 Phe Phe Tyr Glu Gly Gly Ile Gln Ser Phe Val Ser Tyr Leu Asn Gln  
 210 215 220  
 Asn Lys Glu Ser Leu Phe Ser Glu Pro Ile Tyr Ile Cys Gly Thr Arg  
 225 230 235 240  
 Val Gly Asp Asp Gly Glu Ile Glu Phe Glu Ala Ala Leu Gln Trp Asn  
 245 250 255  
 Ser Gly Tyr Ser Glu Leu Val Tyr Ser Tyr Ala Asn Asn Ile Pro Thr  
 260 265 270  
 Arg Gln Gly Gly Thr His Leu Thr Gly Phe Ser Thr Ala Leu Thr Arg  
 275 280 285  
 Val Ile Asn Thr Tyr Ile Lys Ala His Asn Leu Ala Lys Asn Asn Lys  
 290 295 300  
 Leu Ala Leu Thr Gly Glu Asp Ile Arg Glu Gly Leu Thr Ala Val Ile  
 305 310 315 320  
 Ser Val Lys Val Pro Asn Pro Gln Phe Glu Gly Gln Thr Lys Gln Lys  
 325 330 335  
 Leu Gly Asn Ser Asp Val Ser Ser Val Ala Gln Gln Val Val Gly Glu  
 340 345 350  
 Ala Leu Thr Ile Phe Phe Glu Glu Asn Pro Gln Ile Ala Arg Met Ile  
 355 360 365  
 Val Asp Lys Val Phe Val Ala Ala Gln Ala Arg Glu Ala Ala Lys Lys  
 370 375 380  
 Ala Arg Glu Leu Thr Leu Arg Lys Ser Ala Leu Asp Ser Ala Arg Leu  
 385 390 395 400  
 Pro Gly Lys Leu Ile Asp Cys Leu Glu Lys Asp Pro Glu Lys Cys Glu  
 405 410 415  
 Met Tyr Ile Val Glu Gly Asp Ser Ala Gly Gly Ser Ala Lys Gln Gly  
 420 425 430  
 Arg Asp Arg Arg Phe Gln Ala Ile Leu Pro Ile Arg Gly Lys Ile Leu  
 435 440 445  
 Asn Val Glu Lys Ala Arg Leu Gln Lys Ile Phe Gln Asn Gln Glu Ile  
 450 455 460  
 Gly Thr Ile Ile Ala Ala Leu Gly Cys Gly Ile Gly Ala Asp Asn Phe  
 465 470 475 480  
 Asn Leu Ser Lys Leu Arg Tyr Arg Arg Ile Ile Ile Met Thr Asp Ala  
 485 490 495  
 Asp Val Asp Gly Ser His Ile Arg Thr Leu Leu Leu Thr Phe Phe Tyr  
 500 505 510  
 Arg His Met Thr Ala Leu Ile Glu Asn Glu Cys Val Tyr Ile Ala Gln  
 515 520 525  
 Pro Pro Leu Tyr Lys Val Ser Lys Lys Lys Asp Phe Arg Tyr Ile Leu  
 530 535 540

Ser Glu Lys Glu Met Asp Ser Tyr Leu Leu Met Leu Gly Thr Asn Glu  
 545 550 555 560  
 Ser Ser Ile Leu Phe Lys Ser Thr Glu Arg Glu Leu Arg Gly Glu Ala  
 565 570 575  
 Leu Glu Ser Phe Ile Asn Val Ile Leu Asp Val Glu Ser Phe Ile Asn  
 580 585 590  
 Thr Leu Glu Lys Lys Ala Ile Pro Phe Ser Glu Phe Leu Glu Met Tyr  
 595 600 605  
 Lys Glu Gly Ile Gly Tyr Pro Leu Tyr Tyr Leu Ala Pro Ala Thr Gly  
 610 615 620  
 Met Gln Gly Gly Arg Tyr Leu Tyr Ser Asp Glu Glu Lys Glu Glu Ala  
 625 630 635 640  
 Leu Ala Gln Glu Glu Thr His Lys Phe Lys Ile Ile Glu Leu Tyr Lys  
 645 650 655  
 Val Ala Val Phe Val Asp Ile Gln Asn Gln Leu Lys Glu Tyr Gly Leu  
 660 665 670  
 Asp Ile Ser Ser Tyr Leu Ile Pro Gln Lys Asn Glu Ile Val Ile Gly  
 675 680 685  
 Asn Glu Asp Ser Pro Ser Cys Asn Tyr Ser Cys Tyr Thr Leu Glu Glu  
 690 695 700  
 Val Ile Asn Tyr Leu Lys Asn Leu Gly Arg Lys Gly Ile Glu Ile Gln  
 705 710 715 720  
 Arg Tyr Lys Gly Leu Gly Glu Met Asn Ala Asp Gln Leu Trp Asp Thr  
 725 730 735  
 Thr Met Asn Pro Glu Gln Arg Thr Leu Ile His Val Ser Leu Lys Asp  
 740 745 750  
 Ala Val Glu Ala Asp His Ile Phe Thr Met Leu Met Gly Glu Glu Val  
 755 760 765  
 Pro Pro Arg Arg Glu Phe Ile Glu Ser His Ala Leu Ser Ile Arg Ile  
 770 775 780  
 Asn Asn Leu Asp Ile  
 785

&lt;210&gt;289

&lt;211&gt;116

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;289

Asp Met Phe Leu Lys Arg Lys Lys Arg Gly Gly Ser Gln Val Gln Asn  
 1 5 10 15  
 Lys Gly Thr Ala Ser Pro Ile Lys His Ala Lys His Tyr Leu His Asn  
 20 25 30  
 Tyr Leu Gln Glu Leu Gln Lys Ile Met Ala Ala Arg Pro His Asp Ala  
 35 40 45  
 Ile Asp Ala Trp Asn Gln Val Phe Arg Asp Lys Tyr Lys Gly Met Ser  
 50 55 60  
 Gln Ala Ile Gly Phe Arg Asp His Ile Leu Leu Val Lys Val Tyr Asn  
 65 70 75 80  
 Ser Ser Leu Tyr Ala Leu Leu Lys Gln Thr Pro Gln Asn Asp Leu Ile  
 85 90 95  
 Met Ser Leu Tyr Gln Val Ala Ser His Val Gln Ile Arg Glu Ile Gln  
 100 105 110  
 Phe Leu Leu Gly  
 115

&lt;210&gt;290

&lt;211&gt;200

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;290

Asn Ile Ser Ile Phe Tyr Pro Lys Tyr Phe Ile Glu Gly Lys Glu Val  
 1 5 10 15  
 Leu Ile Lys Asn Leu Pro Pro Leu Ile Phe Tyr Gly Val Ile Leu Met  
 20 25 30  
 Ile Ile Asn Val Arg Ala Pro Ala Phe Gly Ile Thr Ser Val Gln Gln  
 35 40 45

Phe Ser Thr Asn Phe Gln Ala Ala Ile Pro Ile Leu Asn Ile Val Ile  
 50 55 60  
 Gly Cys Ser Arg Ile Ser Ser Thr Tyr Ala Glu Asp Ile Glu Glu Val  
 65 70 75 80  
 Ala Gln Glu Lys Leu Glu Lys Ser Thr His Ser Lys Ser Ser Thr Ser  
 85 90 95  
 Val Asn Leu Trp Ala His Arg Val Arg Gly Val Val Glu Ile Leu Gly  
 100 105 110  
 Gly Gly Ile Val Ile Leu Ala Leu Glu Ile Thr Ala Leu Val Leu Gln  
 115 120 125  
 Val Ile Ile Lys Leu Ile Lys Cys Leu Ile Asp Val Leu Cys Val Cys  
 130 135 140  
 Leu Phe Gly Leu Gly Val Cys Val Val Ala Ile Ile Gly Ala Ile Ala  
 145 150 155 160  
 Phe Cys Val Val Val Val Val Lys Tyr Leu Gly Phe Cys Ser Gln Gly  
 165 170 175  
 Glu Glu Leu Glu Pro Ile Glu Val Lys Thr Leu Ile Ser Pro Asp Lys  
 180 185 190  
 Pro Tyr Pro Thr Val Val Tyr Val  
 195 200

&lt;210&gt;291

&lt;211&gt;275

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;291

Arg Asp Ser Met Lys Lys Lys Leu Ser Leu Leu Val Gly Leu Ile Phe  
 1 5 10 15  
 Val Leu Ser Ser Cys His Lys Glu Asp Ala Gln Asn Lys Ile Arg Ile  
 20 25 30  
 Val Ala Ser Pro Thr Pro His Ala Glu Leu Leu Glu Ser Leu Gln Glu  
 35 40 45  
 Glu Ala Lys Asp Leu Gly Ile Lys Leu Lys Ile Leu Pro Val Asp Asp  
 50 55 60  
 Tyr Arg Ile Pro Asn Arg Leu Leu Leu Asp Lys Gln Val Asp Ala Asn  
 65 70 75 80  
 Tyr Phe Gln His Gln Ala Phe Leu Asp Asp Glu Cys Glu Arg Tyr Asp  
 85 90 95  
 Cys Lys Gly Glu Leu Val Val Ile Ala Lys Val His Leu Glu Pro Gln  
 100 105 110  
 Ala Ile Tyr Ser Lys Lys His Ser Ser Leu Glu Arg Leu Lys Ser Gln  
 115 120 125  
 Lys Lys Leu Thr Ile Ala Ile Pro Val Asp Arg Thr Asn Ala Gln Arg  
 130 135 140  
 Ala Leu His Leu Leu Glu Glu Cys Gly Leu Ile Val Cys Lys Gly Pro  
 145 150 155 160  
 Ala Asn Leu Asn Met Thr Ala Lys Asp Val Cys Gly Lys Glu Asn Arg  
 165 170 175  
 Ser Ile Asn Ile Leu Glu Val Ser Ala Pro Leu Leu Val Gly Ser Leu  
 180 185 190  
 Pro Asp Val Asp Ala Ala Val Ile Pro Gly Asn Phe Ala Ile Ala Ala  
 195 200 205  
 Asn Leu Ser Pro Lys Lys Asp Ser Leu Cys Leu Glu Asp Leu Ser Val  
 210 215 220  
 Ser Lys Tyr Thr Asn Leu Val Val Ile Arg Ser Glu Asp Val Gly Ser  
 225 230 235 240  
 Pro Lys Met Ile Lys Leu Gln Lys Leu Phe Gln Ser Pro Ser Val Gln  
 245 250 255  
 His Phe Phe Asp Thr Lys Tyr His Gly Asn Ile Leu Thr Met Thr Gln  
 260 265 270  
 Asp Asn Gly  
 275

&lt;210&gt;292

&lt;211&gt;221

&lt;212&gt;PRT



&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;292

Met Gln Ser Asp Leu Ile Gln Ile Leu Leu Lys Glu Thr Val Asn Thr  
 1 5 10 15  
 Leu Tyr Met Val Ser Thr Ala Phe Phe Phe Ser Cys Ala Ile Gly Gly  
 20 25 30  
 Met Leu Gly Leu Gly Leu Phe Cys Thr Ser Pro Lys Ser Leu Asn Pro  
 35 40 45  
 Lys Lys Ser Leu Tyr Ala Thr Ile Ser Met Ile Leu Ser Phe Leu Thr  
 50 55 60  
 Ala Ile Pro Phe Ala Ile Leu Ile Val Ile Leu Phe Pro Ile Thr Arg  
 65 70 75 80  
 Trp Ile Val Gly Thr Ser Leu Gly Pro Thr Ala Ser Ile Val Pro Leu  
 85 90 95  
 Thr Ile Gly Ala Ile Pro Phe Val Val Thr Ile Val Val Asp Ala Phe  
 100 105 110  
 Arg Asn Ser Ala Leu Asn Tyr Leu Glu Ser Ala Val Ala Leu Gly Ile  
 115 120 125  
 Pro Lys Arg Asn Ile Leu Phe Gly Ile Leu Leu Pro Glu Ser Tyr Pro  
 130 135 140  
 Gln Leu Ile Phe Ser Leu Lys Ser Leu Val Val His Leu Ile Ser Cys  
 145 150 155 160  
 Ser Thr Leu Ala Gly Phe Val Gly Gly Gly Leu Gly Gln Leu Leu  
 165 170 175  
 Leu Gln Tyr Gly Tyr Tyr Arg Phe Glu Trp Ser Val Thr Thr Ser Val  
 180 185 190  
 Leu Val Ile Thr Leu Val Leu Ile Glu Ser Val Arg Ile Leu Gly Asp  
 195 200 205  
 Phe Trp Gly Arg Arg Val Leu Lys Tyr Arg Gly Ile Leu  
 210 215 220

&lt;210&gt;293

&lt;211&gt;341

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;293

Val Ser Glu Gln His Ser Pro Ile Ile Ser Val Gln Asp Val Ser Lys  
 1 5 10 15  
 Lys Leu Gly Asp His Ile Leu Leu Ser Lys Val Ser Phe Ser Val Tyr  
 20 25 30  
 Pro Gly Glu Val Phe Gly Ile Val Gly His Ser Gly Ser Gly Lys Thr  
 35 40 45  
 Thr Leu Leu Arg Cys Leu Asp Phe Leu Asp Met Pro Thr Ser Gly Ser  
 50 55 60  
 Ile Ser Val Ala Gly Phe Asp Asn Ser Leu Pro Thr Gln Lys Phe Ser  
 65 70 75 80  
 Arg Arg Asn Phe Ser Lys Lys Val Ala Tyr Ile Ser Gln Asn Tyr Gly  
 85 90 95  
 Leu Phe Ser Ser Lys Thr Val Phe Glu Asn Ile Ala Tyr Pro Leu Arg  
 100 105 110  
 Ile His His Ser Glu Met Ser Lys Ser Glu Val Glu Glu Gln Val Tyr  
 115 120 125  
 Asp Thr Leu Asn Phe Leu Asn Leu Tyr His Arg His Asp Ala Tyr Pro  
 130 135 140  
 Gly Asn Leu Ser Gly Gly Gln Lys Gln Glu Val Ala Ile Ala Arg Ala  
 145 150 155 160  
 Ile Val Cys Gln Pro Glu Val Val Leu Cys Asp Glu Ile Thr Ser Ala  
 165 170 175  
 Leu Asp Pro Lys Ser Thr Glu Asn Ile Ile Glu Arg Leu Leu Gln Leu  
 180 185 190  
 Asn Gln Glu Arg Gly Ile Thr Leu Val Leu Val Ser His Glu Ile Asp  
 195 200 205  
 Val Val Lys Lys Ile Cys Ser His Val Leu Val Met His Gln Gly Ala  
 210 215 220  
 Val Glu Glu Leu Gly Thr Thr Glu Glu Leu Phe Leu Asn Ser Glu Asn

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<210>294
<211>357
<212>PRT
<213>Chlamydia pneumoniae
<400>294
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528

Asn Ile Thr Ile Ala

355

&lt;210&gt;295

&lt;211&gt;468

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;295

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | His | Ser | His | Ser | Lys | Pro | Thr | Lys | Pro | Leu | Gly | Thr | Phe | Thr | Val |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gly | Met | Leu | Ser | Leu | Ala | Val | Val | Ile | Ser | Leu | Arg | Asn | Leu | Pro | Leu |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     | 30  |     |     |     |
| Thr | Ala | Lys | His | Gly | Leu | Ser | Thr | Leu | Phe | Phe | Tyr | Gly | Leu | Ala | Val |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ile | Cys | Phe | Met | Ile | Pro | Tyr | Ala | Leu | Ile | Ser | Ala | Glu | Leu | Ala | Ser |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Phe | Lys | Pro | Gln | Gly | Ile | Tyr | Ile | Trp | Ala | Arg | Asp | Ala | Leu | Gly | Lys |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Trp | Trp | Gly | Phe | Phe | Ala | Ile | Trp | Met | Gln | Trp | Phe | His | Asn | Met | Thr |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Trp | Tyr | Pro | Ala | Val | Leu | Ala | Phe | Ile | Ala | Ser | Thr | Ile | Val | Tyr | Lys |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ile | Asn | Pro | Glu | Leu | Ala | His | Asn | Lys | Val | Tyr | Ile | Ala | Thr | Val | Ile |
|     | 115 |     |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Leu | Ala | Gly | Phe | Trp | Ile | Leu | Thr | Phe | Phe | Asn | Phe | Leu | Gly | Ile | Thr |
|     | 130 |     |     |     | 135 |     |     |     |     |     | 140 |     |     |     |     |
| Ser | Ser | Ala | Leu | Phe | Ser | Ser | Ile | Cys | Val | Ile | Ile | Gly | Thr | Leu | Ile |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     |     | 160 |
| Pro | Gly | Val | Ile | Leu | Val | Ser | Leu | Ala | Leu | Phe | Trp | Ile | Phe | Ser | Gly |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Asn | Pro | Ile | Ala | Ile | Ser | Leu | Ser | Trp | Gly | Asn | Leu | Leu | Pro | Asn | Phe |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Ser | Asn | Val | Ser | Ser | Leu | Val | Leu | Leu | Ala | Gly | Met | Leu | Leu | Ala | Leu |
|     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     |
| Cys | Gly | Leu | Glu | Ala | Asn | Ala | Asn | Leu | Ala | Ser | Asp | Met | Val | Asn | Pro |
|     | 210 |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |     |
| Arg | Lys | Asn | Tyr | Pro | Lys | Ala | Val | Phe | Ile | Gly | Ala | Ile | Ala | Thr | Leu |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Thr | Ile | Leu | Val | Leu | Gly | Ser | Leu | Ser | Ile | Ala | Ile | Val | Ile | Pro | Lys |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Glu | Glu | Ile | Ser | Leu | Val | Ser | Gly | Leu | Val | Lys | Thr | Phe | Thr | Leu | Phe |
|     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |     |
| Phe | Asp | Lys | Tyr | Asn | Leu | Ser | Trp | Met | Thr | Gly | Ile | Val | Val | Val | Met |
|     | 275 |     |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Thr | Ile | Ala | Gly | Ser | Leu | Gly | Glu | Leu | Asn | Ala | Trp | Met | Phe | Ala | Gly |
|     | 290 |     |     |     | 295 |     |     |     |     |     | 300 |     |     |     |     |
| Thr | Lys | Gly | Leu | Phe | Ile | Ser | Thr | Gln | Asn | Asp | Cys | Leu | Pro | Arg | Leu |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Phe | Lys | Lys | Val | Asn | Ser | Lys | Asn | Val | Pro | Thr | Asn | Leu | Met | Leu | Phe |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Gln | Gly | Ile | Val | Val | Thr | Ile | Phe | Thr | Leu | Leu | Phe | Leu | Cys | Leu | Asp |
|     |     | 340 |     |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Ser | Ala | Asp | Leu | Val | Tyr | Trp | Ile | Leu | Thr | Ala | Leu | Ser | Val | Gln | Met |
|     | 355 |     |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Tyr | Leu | Ala | Met | Tyr | Ile | Cys | Leu | Phe | Leu | Ala | Gly | Pro | Ile | Leu | Arg |
|     | 370 |     |     |     | 375 |     |     |     |     |     | 380 |     |     |     |     |
| Ile | Lys | Glu | Pro | Arg | Ala | Gln | Arg | Leu | Tyr | Ser | Val | Pro | Gly | Lys | Phe |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Leu | Gly | Ile | Cys | Thr | Met | Ser | Ile | Leu | Gly | Ile | Leu | Ser | Cys | Ala | Phe |
|     |     |     | 405 |     |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Ala | Leu | Trp | Val | Ser | Phe | Leu | Pro | Pro | Arg | Glu | Leu | Ala | Gln | Ile | Ser |
|     |     | 420 |     |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Glu | Gly | Ser | Lys | Ile | Gly | Tyr | Thr | Phe | Leu | Leu | Leu | Ala | Phe | Ser |     |
|     | 435 |     |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Leu | Asn | Cys | Leu | Ile | Pro | Phe | Gly | Ile | Tyr | Phe | Thr | His | Lys | Arg | Leu |

450 455 460  
 Ser Lys Lys Ser  
 465  
 <210>296  
 <211>209  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>296  
 Arg Gly Ala Lys Phe Cys Arg Thr Lys Lys Tyr Ile Thr Pro Phe Leu  
 1 5 10 15  
 His His Leu Phe Glu Gly Asp Glu Val Ala Leu Leu Asn Gln Leu Ser  
 20 25 30  
 Leu Arg Leu Asp Leu Ile Val Pro Asn Ala Leu Tyr Pro Glu Pro Asp  
 35 40 45  
 Pro Ser Cys Trp Gln Ser Ile Asn Ser Glu Asp Cys Ala Lys Asp Ala  
 50 55 60  
 Glu Asp Gln Gln Glu Asp Phe Asn Lys Thr Lys Glu Ala Cys Lys Glu  
 65 70 75 80  
 Gly Leu Lys Lys Leu Val Leu Pro Ala Leu Ser Ile Thr Ser Ile Pro  
 85 90 95  
 Gln Leu Leu Arg Ala Arg Arg Phe Lys Gln Gly Ala Glu Ile Leu Met  
 100 105 110  
 Ala Ile Asp Arg Lys Lys Met Lys Gln Asn Pro Phe Ile Phe Leu Glu  
 115 120 125  
 Ala Leu Leu Glu Ser Glu Glu Phe Ser Ile Ser Val Gly Lys Tyr Leu  
 130 135 140  
 Lys Leu Leu Met Pro Ile His Leu Trp Asp Lys Leu Leu His Ala Ile  
 145 150 155 160  
 Tyr Leu Gly Tyr Phe Gln Thr Gly Leu Ile Cys Gln Gly Glu Ile Glu  
 165 170 175  
 Thr Phe Cys Arg Arg Ala Asn Leu Asn Pro Glu Ala Phe Gln Ala Ala  
 180 185 190  
 Ile Gln Gln Gly Arg Leu Leu Ser Phe Leu Phe Pro Lys Met Leu Leu  
 195 200 205  
 Asp

<210>297  
 <211>168  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>297  
 Phe Leu Asp Met Asn Ile Pro Ala Pro Gln Val Pro Val Ile Asp Glu  
 1 5 10 15  
 Pro Val Val Asn Asn Thr Ser Ser Tyr Gly Leu Ser Leu Lys Ser Ser  
 20 25 30  
 Leu Arg Pro Ile Thr Tyr Leu Ile Leu Ala Ile Leu Ala Ile Ala Thr  
 35 40 45  
 Leu Met Ser Val Leu Tyr Phe Cys Gly Ile Ile Ser Val Gly Thr Phe  
 50 55 60  
 Val Leu Gly Met Leu Ile Pro Leu Ser Val Cys Ser Val Leu Cys Val  
 65 70 75 80  
 Ala Tyr Leu Phe Tyr Gln Gln Ser Ser Ile Glu Lys Thr Lys Val Phe  
 85 90 95  
 Ser Ile Thr Ser Pro Ser Val Phe Phe Ser Asp Glu Asp Leu Asn Leu  
 100 105 110  
 Leu Leu Gly Arg Glu Glu Asp Ser Val Ser Ala Ile Asp Glu Leu Leu  
 115 120 125  
 Lys Asn Phe Pro Ala Asp Asp Phe Arg Arg Pro Lys Met Leu Pro Tyr  
 130 135 140  
 Ser Asn Phe Leu Asp Glu Gln Gly Arg Pro Asn Glu Ser Arg Glu Glu  
 145 150 155 160  
 Asp Ser His Thr Ser Lys Ile Leu  
 165  
 <210>298

&lt;211&gt;517

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;298

Lys Glu Leu Phe Asn Leu Phe Phe Phe Thr Ala Asn Lys Glu Thr Thr  
 1 5 10 15  
 Ala Ser His Glu Leu Ile Tyr Arg Lys Asn Gln Ser Phe Ser Leu Ser  
 20 25 30  
 Pro Val Thr Ile Leu Cys Leu Leu Ala Ile Ser Val Leu Leu Leu Leu  
 35 40 45  
 Gly Val Val Phe Ala Leu Val Gly Cys His Val Leu Ala Ala Pro Leu  
 50 55 60  
 Gly Leu Leu Val Trp Gly Cys Ala Ala Ser Val Cys Ser Met Met Ala  
 65 70 75 80  
 Ile Val Ser Leu Met Cys Leu Tyr Lys Gly Gly Lys Pro Leu Ile Glu  
 85 90 95  
 Pro Ser Asn Glu Glu Lys Ile Asp Pro Thr Lys Asp Leu Glu Ile Lys  
 100 105 110  
 Asp Pro Glu Ser Leu Lys Pro Val Pro Val Glu Gly Gln Ser Leu Pro  
 115 120 125  
 Lys Glu Arg Lys Thr Val Ser Phe Lys Ala Lys Ile Pro Ser Ile Val  
 130 135 140  
 Glu Asp Asp Phe Lys Pro Tyr Val Ile Gln Ser Thr Phe Tyr His Gln  
 145 150 155 160  
 Asn Lys Val Tyr Ser Lys Pro Ile Ala Glu Arg Met Gln Ser Leu Glu  
 165 170 175  
 Lys Glu Ile Thr Thr Leu Ile Val Asp Phe Pro Arg Ala Leu Glu Glu  
 180 185 190  
 Ser Ser Lys Ser Ser Gly Ser Leu Leu Arg Gly Val Ile Ser Glu Ile  
 195 200 205  
 Lys Asn Leu Phe Leu Pro Arg Phe Leu Ser Arg Lys Val Lys Tyr Ser  
 210 215 220  
 Leu Thr Ala Cys Leu Arg Arg Leu Gly Ser Ile Val Glu Glu Tyr Ala  
 225 230 235 240  
 Ser Ser Asp Leu Leu Ile Leu Leu Leu Thr Lys Pro Glu Pro Leu Asn  
 245 250 255  
 Met Val Thr Gln Gln Leu Ile Ala His Leu Asn Ser Leu Lys Thr Glu  
 260 265 270  
 Lys Arg Lys Leu Thr Pro His Met Gln Lys Leu Val Leu Ser Ile Asn  
 275 280 285  
 Phe Trp Phe Tyr Gly Trp Ser Leu Glu Glu Lys Cys Ile Glu Lys Ile  
 290 295 300  
 Val Ala Tyr Asp Pro Asn Leu Leu Thr Asp Glu Leu Lys Ala His Leu  
 305 310 315 320  
 Glu Ala Gly Asn Ile Val Gln Phe Leu Leu Ser Phe Gln Ser Ser Glu  
 325 330 335  
 Met Gln Arg Glu Phe Arg Ala Leu Phe Pro Ser Asp Ala Gln Glu Leu  
 340 345 350  
 Pro Ser Ala Lys Asp Gly Ser Asn Tyr Val Pro Ala Ile Asn Ser Ser  
 355 360 365  
 Glu Tyr Met Tyr Asp Phe Lys Asp Leu Ser Val Leu Lys Lys Ser Leu  
 370 375 380  
 Ser Glu Arg Leu Ala Phe Cys Glu Lys Ile Pro Ser Pro Ser Ser Trp  
 385 390 395 400  
 Asn Phe Thr Ser Ser Val Ala Ser His Tyr Lys Asp Phe Ser Leu Leu  
 405 410 415  
 Phe Thr Phe Phe Ser Asn Gln Gln Ser Val Ile Leu Gln Asn Pro Phe  
 420 425 430  
 Leu Leu Ile Glu Leu Leu His Glu Asn Pro Lys Cys Gln Thr Phe Leu  
 435 440 445  
 Lys Gly Leu Leu Glu Lys Ala Met Pro Met Ser Asn Trp Ala Ala Leu  
 450 455 460  
 Phe Arg Pro Met Leu Met Gly Met Leu Cys Ser Gly Ile Ala Arg Lys  
 465 470 475 480

532

420 425 430  
 Gln Leu Gly Val Thr Val Ala Thr Gly Val Leu Gly Ala Ser Leu Thr  
 435 440 445  
 Ala Thr Thr Leu Gly Val Leu Ser Pro Phe Phe Phe Ala Lys Leu Gly  
 450 455 460  
 Val Asp Pro Ala Leu Ala Ser Gly Pro Ile Val Thr Ala Leu Asn Asp  
 465 470 475 480  
 Ile Met Ser Met Ile Ile Phe Phe Leu Ile Ala Gly Gly Ile Asn Phe  
 485 490 495  
 Leu Phe Phe Asn  
 500  
 <210>300  
 <211>714  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>300  
 Arg Arg Cys Met Ile Arg Ser Pro Leu Pro Phe Ile Ser Ser Lys Arg  
 1 5 10 15  
 Ala Leu Asn Met Leu Gly Leu Gln Asp Glu Phe Ser Cys Pro Glu Asp  
 20 25 30  
 Val Val Asp Phe Leu Phe Ser Glu Ile Glu Leu Leu Ala Gln Gln Asp  
 35 40 45  
 Glu Pro Ser Glu Gly Tyr Leu Ala Leu Ser Arg Ser Leu Leu Met Met  
 50 55 60  
 Thr His Asn His Pro Lys Val Val Lys Arg Val Ile Phe Tyr Gly Val  
 65 70 75 80  
 Ser Tyr Gly Leu Lys His Lys Ser Met Ser Ile Phe Ile Asp Val Leu  
 85 90 95  
 Thr Tyr Ile Asp Phe Leu Phe Glu Lys Leu Gly Ile Ser Ala Ser Asp  
 100 105 110  
 Arg Leu Ser Leu Cys Ser Ala Arg Thr Cys Ile Asn Phe Glu Leu Tyr  
 115 120 125  
 Ser Gln Thr Gly Glu Met Lys Phe Leu Ser Glu Val Val Asp Asn Phe  
 130 135 140  
 Arg Leu Ile Glu Gln Leu Leu Lys Met His Pro Gln Leu Lys Asn Arg  
 145 150 155 160  
 Phe Gly Trp Glu His Phe Arg Ile Gly Ala Lys Gln Glu Glu Val Ser  
 165 170 175  
 Leu Val Ala Ser Ala Ser Val Tyr Gln Ala Val Gly Arg Ser Phe Ile  
 180 185 190  
 Glu Leu Tyr His Lys His Leu Glu Leu Ser Asp Leu Ala Cys Gly Met  
 195 200 205  
 Lys Cys Leu Ala Leu Ala Leu Asp Leu Ser Pro Asn Asn Ala His Ile  
 210 215 220  
 His Ala Asp Tyr Ala Lys Gly Leu Val Val Leu Gly Thr Arg Gln Gly  
 225 230 235 240  
 Lys Ser Leu Leu Ile Glu Arg Gly Met Glu His Phe Ser Lys Ala Ile  
 245 250 255  
 Phe Leu Ser Phe Ser Arg Asp Gly Asp Thr Leu Ala Tyr Gln Asn Tyr  
 260 265 270  
 Arg Tyr Ser Tyr Ala Leu Ala Ser Val Lys Leu Phe Asp Leu Thr Tyr  
 275 280 285  
 Lys Lys Glu His Phe Asp Gln Ala Met Asn Ile Leu Tyr Gln Thr Val  
 290 295 300  
 Gln Ala Phe Pro Asn Leu Ser Gly Leu Trp Met Val Trp Gly Glu Leu  
 305 310 315 320  
 Leu Ile Arg Ser Gly Trp Leu Asn Ser Asn Met Lys Tyr Ile Glu Val  
 325 330 335  
 Gly Leu Glu Lys Leu Ala Ser Leu Gln Lys Lys Thr Asn Asp Pro Ile  
 340 345 350  
 Ala Leu Ser Gly Leu Leu Ala Thr Gly Ile Ala Ile Leu Gly Leu Tyr  
 355 360 365  
 Leu Glu Glu Pro Asn Leu Phe Lys Asp Ser Arg His Arg Leu Ile Ser  
 370 375 380

Ala Met Arg Met Phe Pro Gly Asn Ser Ala Leu Val His Ala Leu Gly  
 385 390 395 400  
 Val Val Gln Leu Cys Ser Ala Leu Tyr Phe Asn Glu Asp Ser His Phe  
 405 410 415  
 Ala Ser Ala Ile Ser Cys Phe Gln Ser Cys Leu Glu Trp Asp Leu Asp  
 420 425 430  
 Ala Thr Gly Met Trp Gln Lys Leu Phe Asp Ala Tyr Phe Ser Trp Gly  
 435 440 445  
 Ile Lys Lys Lys Ser Ala Arg Leu Leu Arg Lys Ala Val Asp Val Ala  
 450 455 460  
 Ser Arg Leu Cys Ser Leu Arg Pro Glu Ala Phe Leu Phe Trp Ser Asp  
 465 470 475 480  
 Arg Gly Leu Ala Leu Lys Cys Leu Ala Glu Ala Thr Ile Asp Glu Ala  
 485 490 495  
 Tyr Lys Glu Ile Phe Leu Ser Glu Ser Leu Leu His Tyr Gln Arg Ala  
 500 505 510  
 Trp Asp Leu Ser Gly Arg Leu Glu Ile Leu Glu Leu Trp Gly Gln Ser  
 515 520 525  
 His Tyr Leu Leu Ala Glu Leu Gln Gln Ser Leu Phe His Tyr Asp Glu  
 530 535 540  
 Ala Tyr Thr Leu Leu Thr Lys Val Asp Leu Thr Leu Ser Ser Ser Arg  
 545 550 555 560  
 Val Lys Leu Ile Leu Ala Ala Val Leu Leu Gly Lys Gly Arg Leu Leu  
 565 570 575  
 Gln Asp Thr Asp Pro Ala Glu Glu Ala Arg Glu Ile Leu Glu Pro Leu  
 580 585 590  
 Val Glu Val Tyr Leu Glu Asp Glu Asn Phe Leu Leu Leu Leu Gly Lys  
 595 600 605  
 Val Tyr Leu Phe Leu Phe Trp Lys Asn Lys Asn Val Cys Leu Gly Lys  
 610 615 620  
 Leu Ala Arg Thr Tyr Leu Glu Lys Ala Thr Ser Leu Gly Cys Pro Glu  
 625 630 635 640  
 Ala Tyr Tyr Thr Leu Gly Lys Phe Tyr Ala Val Ile Lys Asp Val Asn  
 645 650 655  
 Lys Ala Trp Gly Met Val Ile Arg Ser Ala Gln Tyr Gly Val Arg Ile  
 660 665 670  
 Thr Glu Ala Lys Trp Leu Asn Asp Pro Tyr Leu Ala Asn Leu Arg Glu  
 675 680 685  
 Ile His Ala Phe Arg Glu Val Val Glu Asn Gln Lys Gly Arg Leu Trp  
 690 695 700  
 Leu Gly Asn Lys Thr Glu Met Lys Arg Asn  
 705 710

&lt;210&gt;301

&lt;211&gt;405

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;301

Ile Ser Ile Thr Ile Arg Glu Phe Leu Phe Phe Gly Phe Glu Cys Arg  
 1 5 10 15  
 Ala Lys Phe Tyr Asn Val Ile Met Ser Cys Phe Asn Leu Thr Ser Thr  
 20 25 30  
 Asn Glu Ser Leu Arg Pro Ile Ser Pro Lys Ala Ser Phe Pro Lys Gln  
 35 40 45  
 Gly Trp Gln Ser Tyr Phe Arg Ser Ala Leu Arg Lys His Arg Ser Asp  
 50 55 60  
 Thr Leu Ser Val Ser Val Cys Lys Val Asn Lys Tyr Asp Ala Asn Leu  
 65 70 75 80  
 Phe Val Arg Leu Thr Val Ile Ala Leu Ala Val Val Gly Val Leu Ile  
 85 90 95  
 Leu Phe Ser Ile Met Leu Ala Ser Ile Gln Gly Thr Leu Val Ile Thr  
 100 105 110  
 Ser Trp Pro Leu Val Thr Ala Ala Ile Leu Ile Pro Thr Ile Leu Leu  
 115 120 125  
 Thr Gly Gly Met Tyr Ile Leu His Arg Leu Gly Lys Lys Val Asp Val



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      130              135              140
Ile Ser Gly Val Cys Ile Pro Pro Phe Ser Arg Arg Cys Trp Val Pro
145              150              155              160
Ile Ser Ser Ser His Thr Leu Glu Lys Phe Asp Glu Lys His Val Ser
      165              170              175
Ala Cys Ser Tyr Leu Asp Ile Ser Thr Leu Ser Ala Asp Gly Ser Gly
      180              185              190
Ile Ala Ala Val Tyr Gln Cys Pro Pro Leu Leu Phe Arg Ala Phe Pro
      195              200              205
Cys Phe Gly Ile Pro Cys Ala Met Pro Phe Val Ala Leu Leu Arg Met
      210              215              220
Ile Tyr Asn Leu Ile Arg Phe Leu Val Val Pro Phe Tyr Ile Ile Phe
225              230              235              240
Arg Met Ile Tyr Glu His Phe Phe Cys Lys His Leu Pro Glu Asp Asp
      245              250              255
Arg Phe Ile Tyr Lys Asp Val Ala Arg Glu Met Gly Arg Ser Leu Ala
      260              265              270
Ala Phe Leu Lys Ala Pro Phe Tyr Ala Ser Ala Cys Met Ile Gly Ala
      275              280              285
Phe Tyr Ser Leu Leu Asp Pro Leu Ala Gly Arg Val Leu Met Gly Ser
      290              295              300
Val Glu Arg Asp Trp Asn Asp Asn Val Ile Leu Ala Arg Ser Val Ser
305              310              315              320
Leu Ala Asn Glu Ala His Ser Leu Phe Arg Phe Glu Gly Gly Gly Gly
      325              330              335
Arg Lys Gly Leu Gly Gln His Ala Phe Tyr Leu Met Leu Cys Cys Gln
      340              345              350
Pro Gln Ser Val Phe Leu Phe Asp Lys Gly Glu Ile Val Ser Gly Ala
      355              360              365
His Pro Ser Ile Gln Leu Pro Glu Arg Arg Gly Leu Asp Thr Ser Gly
      370              375              380
Arg Tyr Pro His Ile Ser Val Ile Pro Asp Ser Gly Asn Asp Ser Ala
385              390              395              400
Lys Asn Phe Ile Val
      405

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&lt;210&gt;302

&lt;211&gt;400

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;302

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Asn Phe Asn Arg Leu Met Lys Lys Gln Arg Ser His Tyr Thr Lys Asn
 1          5          10          15
Asn Leu Leu Leu Leu Leu Ser Ile Leu Val Gly Leu Gly Leu Gly Ser
      20          25          30
Val Gln Ser Pro Trp Ile Val Tyr Ser Ala Glu Cys Ile Ala Asn Thr
      35          40          45
Phe Leu Lys Phe Leu Arg Leu Leu Ser Ile Pro Leu Val Phe Cys Ala
      50          55          60
Leu Gly Ser Thr Ile Thr Ser Ile Gln Asn Phe Asn Thr Met Val Thr
      65          70          75          80
Leu Gly Lys Arg Ile Leu Tyr Tyr Thr Leu Leu Thr Thr Val Ile Ala
      85          90          95
Ala Ser Ile Gly Leu Leu Leu Phe Phe Leu Leu Arg Pro Gln Met Ile
      100          105          110
Thr Gln Asp Ala Leu Ala Thr Thr Lys Cys Asn Pro Leu Gly Tyr
      115          120          125
Leu Asp Val Leu Ser Asp Thr Leu Pro Glu Asn Ile Phe Lys Pro Phe
      130          135          140
Leu Gln Gly Asn Val Ile Ser Ala Ala Cys Leu Ala Val Leu Leu Gly
145          150          155          160
Thr Ala Ser Leu Phe Leu Gln Glu Lys Glu Lys His Phe Val Asn Gln
      165          170          175
Phe Phe Asn Ser Phe Phe Ser Ile Phe Leu Asn Leu Ala Arg Gly Gly
      180          185          190

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Leu Lys Leu Leu Pro Ile Ala Met Leu Gly Phe Ser Val Ile Leu Phe  
 195 200 205  
 Lys Glu Leu Lys Asp Gln Ser Asn Leu Thr Met Phe Ala Glu Tyr Leu  
 210 215 220  
 Leu Cys Val Ile Gly Ala Asn Leu Ala Gln Gly Phe Ile Val Leu Pro  
 225 230 235 240  
 Ile Leu Leu Lys Ile Asn Lys Val Ser Pro Leu Lys Val Ala Lys Ala  
 245 250 255  
 Met Ser Pro Ala Leu Val Thr Ala Phe Phe Ser Lys Ser Ser Ala Ala  
 260 265 270  
 Thr Leu Pro Leu Thr Met Glu Leu Ala Glu Asp Asp Leu Lys Ile Asn  
 275 280 285  
 Lys Asn Leu Ser Arg Phe Ser Phe Pro Leu Cys Ser Val Ile Asn Met  
 290 295 300  
 Asn Gly Cys Ala Ala Phe Ile Leu Ile Thr Val Leu Phe Val Ala Thr  
 305 310 315 320  
 Ser Asn Gly Met Ile Ile Ser Pro Leu Met Ser Leu Gly Trp Ile Phe  
 325 330 335  
 Ile Ala Thr Leu Ala Ala Ile Gly Asn Ala Gly Val Pro Met Gly Cys  
 340 345 350  
 Tyr Phe Leu Thr Leu Ser Leu Leu Thr Ser Met Asn Val Pro Leu Ser  
 355 360 365  
 Ile Leu Gly Leu Ile Leu Pro Phe Tyr Thr Val Ile Asp Met Ile Glu  
 370 375 380  
 Thr Ser Leu Asn Val Trp Ser Asp Cys Cys Val Val Ser Leu Ala Asn  
 385 390 395 400

&lt;210&gt;303

&lt;211&gt;234

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;303

Ser Trp Gly Ile Ile Ile Phe Ser Thr Cys Ala Ser Leu Asp Ile Leu  
 1 5 10 15  
 Gly Thr Thr Gln Leu Gln Asp Gly Ala Gly Ala Ser Ser Ile Gly Ile  
 20 25 30  
 Thr Phe Ile Tyr Leu Pro Glu Leu Phe Thr Arg Leu Pro Gly Gly Ile  
 35 40 45  
 Tyr Leu Thr Thr Leu Phe Ser Ile Phe Phe Leu Ala Phe Ser Met  
 50 55 60  
 Ala Ala Leu Ser Ser Met Ile Ser Met Leu Phe Leu Leu Ser Gln Thr  
 65 70 75 80  
 Leu Ala Glu Phe Gly Ile Lys Pro Tyr Ile Ser Glu Thr Leu Ala Thr  
 85 90 95  
 Ile Ile Ala Phe Val Leu Gly Ile Pro Ser Ala Leu Ser Leu Thr Phe  
 100 105 110  
 Phe Ser Asn Gln Asp Thr Val Trp Gly Val Ala Leu Ile Val Asn Gly  
 115 120 125  
 Leu Ile Phe Ile Tyr Ala Ala Leu Val Tyr Gly Phe Pro Lys Leu Lys  
 130 135 140  
 Lys Glu Val Ile Asn Ala Ala Pro Gly Asp Leu Arg Leu Asn Lys Ala  
 145 150 155 160  
 Phe Asp Tyr Ile Ile Lys Tyr Leu Leu Leu Ile Glu Gly Ile Leu Leu  
 165 170 175  
 Leu Gly Trp Tyr Phe Tyr Glu Gly Leu Phe Pro Glu Asn Gly Gln Trp  
 180 185 190  
 Trp Asn Pro Ile Ser Leu Tyr Ser Leu Gly Ser Leu Val Leu Gln Trp  
 195 200 205  
 Ser Leu Gly Leu Ile Ile Leu Trp Lys Phe Asn Lys Gln Leu Tyr Leu  
 210 215 220  
 Arg Phe Ser Arg Tyr Asn His Glu Ile Leu  
 225 230

&lt;210&gt;304

&lt;211&gt;179

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;304

Glu Lys His Met Ser Ala Pro Ile Pro Thr Pro Gln Glu Leu Ser Asp  
 1 5 10 15  
 Gln Ile Thr Cys Leu Asn Val Gln Tyr Gln Gln Val Ser Glu Leu Ala  
 20 25 30  
 Arg Glu Asn Lys Gly Asp Ile Glu Gly Leu Lys Thr Leu Thr Ala Ala  
 35 40 45  
 Leu Thr Ala Asp Ala Gly Ile Gln Pro Ser Ala Asp Glu Ile Tyr Ser  
 50 55 60  
 Leu Gln Thr Ala Ala Ala Leu Ile Leu Ser Ala Ser Glu Lys Pro Gly  
 65 70 75 80  
 Ser Gly Pro Ser Gly Ser Thr Glu Gly Ser Val Thr Val Gln Ser Pro  
 85 90 95  
 Cys Lys Phe Lys Lys Val Leu Ala Val Val Leu Thr Ile Ile Ala Leu  
 100 105 110  
 Ile Ala Ile Ala Val Leu Ile Ala Cys Ile Ile Ala Ala Cys Gly Gly  
 115 120 125  
 Phe Pro Leu Leu Leu Ser Ala Leu Asn Leu Tyr Thr Ile Gly Ala Cys  
 130 135 140  
 Val Ser Leu Pro Ile Ile Ala Ser Thr Ser Val Ala Leu Ile Cys Leu  
 145 150 155 160  
 Cys Thr Phe Val Ala Asn Ser Leu Ile Lys Pro Val Ile Thr Val Arg  
 165 170 175  
 Thr Thr Arg

&lt;210&gt;305

&lt;211&gt;212

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;305

Val Lys Asn Thr Lys Asn Ser Asp Phe Met Thr Ser Pro Ile Pro Phe  
 1 5 10 15  
 Gln Ser Ser Gly Asp Ala Ser Phe Leu Ala Glu Gln Pro Gln Gln Leu  
 20 25 30  
 Pro Ser Thr Ser Glu Ser Gln Leu Val Thr Gln Leu Leu Thr Met Met  
 35 40 45  
 Lys His Thr Gln Ala Leu Ser Glu Thr Val Leu Gln Gln Arg Asp  
 50 55 60  
 Arg Leu Xaa Thr Ala Ser Ile Ile Leu Gln Val Gly Gly Ala Pro Thr  
 65 70 75 80  
 Gly Gly Ala Gly Ala Pro Phe Gln Pro Gly Pro Ala Asp Asp His His  
 85 90 95  
 His Pro Ile Pro Pro Pro Val Val Pro Ala Gln Ile Glu Thr Glu Ile  
 100 105 110  
 Thr Thr Ile Arg Ser Glu Leu Gln Leu Met Arg Ser Thr Leu Gln Gln  
 115 120 125  
 Ser Thr Lys Gly Ala Arg Thr Gly Val Leu Val Val Thr Ala Ile Leu  
 130 135 140  
 Met Thr Ile Ser Leu Leu Ala Ile Ile Ile Ile Ile Leu Ala Val Leu  
 145 150 155 160  
 Gly Phe Thr Gly Val Leu Pro Gln Val Ala Leu Leu Met Gln Gly Glu  
 165 170 175  
 Thr Asn Leu Ile Trp Ala Met Val Ser Gly Ser Ile Ile Cys Phe Ile  
 180 185 190  
 Ala Leu Ile Gly Thr Leu Gly Leu Ile Leu Thr Asn Lys Asn Thr Pro  
 195 200 205  
 Leu Pro Ala Ser  
 210

&lt;210&gt;306

&lt;211&gt;907

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;306

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Trp | Ser | Met | Gln | Arg | Val | Leu | Arg | Leu | Leu | Phe | Asn | Leu | His | His |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Gly | Glu | Glu | Lys | Arg | Ala | Phe | Leu | Phe | Phe | Leu | Leu | Gly | Leu | Val | Trp |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Gly | Ile | Gly | Cys | Tyr | Gly | Thr | Leu | Ser | Leu | Ala | Glu | Gly | Leu | Phe | Ile |
|     |     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Glu | Lys | Leu | Gly | Ser | Ala | Glu | Leu | Pro | Lys | Ile | Tyr | Leu | Gly | Ser | Ser |
|     | 50  |     |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |
| Leu | Ile | Leu | Cys | Val | Leu | Ser | Ser | Leu | Ile | Leu | Tyr | Asn | Leu | Phe | Lys |
|     | 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Lys | His | Ile | Ser | Ala | Thr | Ala | Leu | Phe | Leu | Ile | Pro | Val | Ser | Leu | Ser |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ile | Leu | Cys | Asn | Phe | Tyr | Leu | Ile | Leu | Ser | Ser | Ile | Phe | Ala | Ile | Asp |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Pro | Pro | Arg | Ser | Pro | Leu | Phe | Phe | Tyr | Arg | Ile | Val | Ile | Trp | Ser | Leu |
|     | 115 |     |     |     |     |     |     | 120 |     |     |     |     | 125 |     |     |
| Thr | Ile | Leu | Ser | Tyr | Thr | Ser | Phe | Trp | Gly | Phe | Val | Asp | Gln | Phe | Phe |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Asn | Leu | Gln | Asp | Gly | Lys | Arg | His | Phe | Cys | Ile | Phe | Asn | Ala | Ile | Ile |
|     | 145 |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Phe | Leu | Gly | Asp | Ala | Ile | Gly | Ser | Gly | Ile | Ile | Ala | Ser | Leu | Val | His |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Thr | Ile | Gly | Ile | Gln | Gly | Ile | Leu | Ile | Leu | Phe | Thr | Ala | Ala | Leu | Val |
|     | 180 |     |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Leu | Thr | Phe | Pro | Ile | Val | Phe | Tyr | Val | Ser | Lys | Ser | Leu | Lys | Ser | Leu |
|     | 195 |     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |
| Ser | Asp | Asp | His | Asp | Leu | Phe | Ile | Asp | Thr | Gly | His | Pro | Pro | Pro | Leu |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Ser | Lys | Ala | Leu | Lys | Leu | Cys | Phe | Tyr | Asp | Lys | Tyr | Thr | Phe | Tyr | Leu |
|     | 225 |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Leu | Cys | Phe | Tyr | Phe | Leu | Met | Gln | Leu | Leu | Ala | Ile | Ala | Thr | Glu | Phe |
|     |     |     |     | 245 |     |     |     |     |     | 250 |     |     |     | 255 |     |
| Asn | Tyr | Leu | Lys | Ile | Phe | Glu | Ile | Gln | Phe | Ala | Ser | Lys | Glu | Glu | Phe |
|     |     | 260 |     |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Glu | Leu | Val | Ala | His | Ile | Gly | Lys | Cys | Ser | Leu | Trp | Ile | Ser | Leu | Gly |
|     | 275 |     |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Asn | Met | Cys | Phe | Ala | Leu | Phe | Ala | Tyr | Ser | Arg | Ile | Val | Lys | Arg | Leu |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Gly | Val | Asn | Asn | Ile | Ile | Leu | Phe | Ala | Pro | Leu | Cys | Phe | Leu | Ser | Leu |
|     | 305 |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Phe | Leu | Phe | Trp | Thr | Phe | Lys | Thr | Thr | Leu | Ser | Ile | Ala | Val | Leu | Ala |
|     |     |     | 325 |     |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Met | Val | Val | Arg | Glu | Gly | Val | Thr | Tyr | Ala | Leu | Asp | Asp | Asn | Asn | Leu |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Gln | Leu | Leu | Ile | Tyr | Gly | Val | Pro | Asn | Lys | Ile | Arg | Asn | Gln | Ile | Arg |
|     | 355 |     |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Ile | Val | Val | Glu | Ser | Phe | Ile | Glu | Pro | Ile | Gly | Met | Leu | Val | Trp | Ser |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Leu | Val | Cys | Phe | Leu | Ser | Ser | Gln | Gln | Tyr | Val | Phe | Cys | Leu | Ile | Ile |
|     | 385 |     |     |     | 390 |     |     |     |     | 395 |     |     |     | 400 |     |
| Ser | Leu | Ile | Ala | Thr | Ile | Leu | Val | Cys | Leu | Val | Arg | Ser | Tyr | Tyr | Ala |
|     |     |     | 405 |     |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Lys | Ala | Ile | Leu | Lys | Asn | Leu | Ser | Ala | Gln | Ala | Leu | Gln | Leu | Thr | Arg |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Ser | Met | Gln | Asp | Trp | Ile | Lys | Ser | Met | Thr | Val | Lys | Gln | Lys | Arg | Gln |
|     |     | 435 |     |     |     | 440 |     |     |     |     |     | 445 |     |     |     |
| Val | Glu | Leu | Phe | Leu | Leu | Ala | His | Leu | Lys | His | Pro | Ser | Glu | Arg | His |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Gln | Thr | Phe | Ala | Phe | Gln | His | Leu | Leu | Asn | Leu | Ala | Ser | Arg | Ser | Val |
|     | 465 |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Leu | Pro | Ser | Leu | Leu | Ala | His | Met | Asn | Lys | Leu | Ser | Leu | Pro | Asn | Lys |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |     |
| Leu | Lys | Thr | Ile | Glu | Met | Val | Lys | Ser | Ser | Leu | Trp | Ala | Lys | Asp | Phe |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |

Leu Thr Leu Glu Leu Leu Lys Arg Trp Thr Ser Ile Phe Pro His Pro  
 515 520 525  
 Ala Ile Ala Ser Ala Ile His Leu Tyr Phe Ala Glu His Asp Leu Leu  
 530 535 540  
 His Ile Thr His Ile Ala Glu Asp Leu Tyr Asp Thr Val Gly Asp Arg  
 545 550 555 560  
 Leu Leu Ala Ala Ile Leu Thr Val Arg Arg Gln Glu Ala Tyr Gly Pro  
 565 570 575  
 Tyr Arg Asp Leu Ala Asp Lys Arg Leu Lys Glu Leu Leu Asn Ser Asp  
 580 585 590  
 Gln Pro Glu Asp Ile Val Met Gly Leu Thr Ile Leu Lys Leu Glu Lys  
 595 600 605  
 Asn Pro Gln Asn Phe Pro Ile Leu Leu Asp Phe Leu Asn Thr Lys Asn  
 610 615 620  
 Glu Asp Ile Leu Ile Val Thr Cys Lys Ala Leu His Thr Ser Val Arg  
 625 630 635 640  
 Ala Asn His Lys Pro Tyr Cys Pro Glu Leu Leu Lys Arg Leu Arg Gln  
 645 650 655  
 Cys Ser His Asn Asp Glu Ala Ser Gln Tyr Leu Leu Lys Thr Ile Ser  
 660 665 670  
 Ile Ala Leu Asp Ile Ser Phe Val Lys Asp Leu Leu Met Thr Thr Ser  
 675 680 685  
 Gln Leu Lys Asn Thr Ser Arg Lys Tyr Ala Glu Ala Met Ile Gly Glu  
 690 695 700  
 Leu Asp Lys Glu Val Ala Pro Ala Phe Leu Gln Val Leu Thr Asp Glu  
 705 710 715 720  
 Gly Thr His Asn Arg Cys Arg Ile Leu Ala Ala Lys Ala Leu Cys Lys  
 725 730 735  
 Ile Asp Asn Trp Leu Leu Lys Lys His Ala Tyr Lys Ile Val Lys Ser  
 740 745 750  
 Lys Ala Ser Lys Ala Leu Phe Tyr Ser Tyr His Gly His Tyr Ile Gln  
 755 760 765  
 Lys Lys Tyr Pro Thr Tyr Asn Leu Ser Leu Leu Ala Asn Thr Leu Asn  
 770 775 780  
 Ser Asn Tyr Tyr Ala Glu Val Asn Phe Met Leu Ser Leu Leu Gly Ile  
 785 790 795 800  
 Leu Gly Ser Met Glu His Ser Gly Val Leu Ile Arg Ala Leu Thr Ser  
 805 810 815  
 Lys Asn Gln Lys Ile Lys Ala Gln Ala Leu Glu Ser Leu Glu Lys Asn  
 820 825 830  
 Cys Asp Ser His Leu Phe Ser Leu Leu Glu Pro Phe Val Asn Gln Pro  
 835 840 845  
 Gly Met Cys Tyr Ser Glu Lys Tyr Tyr Phe Lys Cys Gly Val Ile Pro  
 850 855 860  
 Leu Thr Leu Lys Glu Leu Leu Asn Met Met Glu Asn Ser Pro Ser Ser  
 865 870 875 880  
 Leu Asn Lys Leu Thr Ala Gln Gln Leu Lys Glu Glu Leu Ser Tyr Cys  
 885 890 895  
 Asp Pro Asp Phe Pro Ile Cys Lys Tyr Asn Leu  
 900 905

&lt;210&gt;307

&lt;211&gt;142

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;307

Ile Arg Asn Phe Phe Met Asn Leu Ile Asp Arg Ala Phe Leu Leu Lys  
 1 5 10 15  
 Lys Thr Ile Ile Phe Gln Ser Leu Asp Met Asp Leu Leu Leu Thr Ile  
 20 25 30  
 Ala Asp Lys Thr Glu Thr Ile Ile Phe Lys Pro Gly Ser Asn Val Phe  
 35 40 45  
 Ser Ile Gly Gln Pro Gly Phe Ser Phe Tyr Ile Ile Val Glu Gly Tyr  
 50 55 60  
 Ile Thr Ile Ser Lys Glu Lys Leu Glu Ser Pro Leu Asn Leu Lys Pro

```

. 65              70              75              80
Leu Asp Cys Phe Gly Glu Glu Ser Leu Phe Asn Asn Lys Pro Arg Glu
                        85              90              95
Tyr Asn Ala Ser Ala Asn Thr Gln Val Arg Met Leu Val Leu Ser Lys
                        100             105             110
Gly Gln Ile Leu Asn Ile Val Glu Glu Cys Pro Ser Val Ala Leu Ser
                        115             120             125
Phe Leu Glu Leu Tyr Ala Lys Gln Ile Lys Phe Arg Glu Pro
                        130             135             140
<210>308
<211>79
<212>PRT
<213>Chlamydia pneumoniae
<400>308
Met Ser Leu Glu Asp Asp Val Ile Ala Ile Ile Val Glu Gln Leu Gly
 1          5          10          15
Val Asp Pro Lys Glu Val Asn Glu Asn Ser Ser Phe Ile Glu Asp Leu
                20          25          30
Asn Ala Asp Ser Leu Asp Leu Thr Glu Leu Ile Met Thr Leu Glu Glu
                35          40          45
Lys Phe Ala Phe Glu Ile Ser Glu Glu Asp Ala Glu Lys Leu Arg Thr
                50          55          60
Val Gly Asp Val Phe Thr Tyr Ile Lys Lys Arg Gln Ala Glu Gln
                65          70          75
<210>309
<211>251
<212>PRT
<213>Chlamydia pneumoniae
<400>309
Met Ile Cys Met Asp Ile Thr Leu Val Gly Lys Lys Val Ile Val Thr
 1          5          10          15
Gly Gly Ser Arg Gly Ile Gly Leu Gly Ile Val Lys Leu Phe Leu Glu
                20          25          30
Asn Gly Ala Asp Val Glu Ile Trp Gly Leu Asn Glu Glu Arg Gly Gln
                35          40          45
Ala Val Ile Glu Ser Leu Thr Gly Leu Gly Gly Glu Val Ser Phe Ala
                50          55          60
Arg Val Asp Val Ser His Asn Gly Gly Val Lys Asp Cys Val Gln Lys
                65          70          75          80
Phe Leu Asp Lys His Asn Lys Ile Asp Ile Leu Val Asn Asn Ala Gly
                85          90          95
Ile Thr Arg Asp Asn Leu Leu Met Arg Met Ser Glu Asp Asp Trp Gln
                100         105         110
Ser Val Ile Ser Thr Asn Leu Thr Ser Leu Tyr Tyr Thr Cys Ser Ser
                115         120         125
Val Ile Arg His Met Ile Lys Ala Arg Ser Gly Ser Ile Ile Asn Val
                130         135         140
Ala Ser Ile Val Ala Lys Ile Gly Ser Ala Gly Gln Thr Asn Tyr Ala
145         150         155         160
Ala Ala Lys Ala Gly Ile Ile Ala Phe Thr Lys Ser Leu Ala Lys Glu
                165         170         175
Val Ala Ala Arg Asn Ile Arg Val Asn Cys Leu Ala Pro Gly Phe Ile
                180         185         190
Glu Thr Asp Met Thr Ser Val Leu Asn Asp Asn Leu Lys Ala Glu Trp
                195         200         205
Leu Lys Ser Ile Pro Leu Gly Arg Ala Gly Thr Pro Glu Asp Val Ala
                210         215         220
Arg Val Ala Leu Phe Leu Ala Ser Gln Leu Ser Ser Tyr Met Thr Ala
225         230         235         240
Gln Thr Leu Val Val Asp Gly Gly Leu Thr Tyr
                245         250
<210>310
<211>308
<212>PRT

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&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;310

Met Lys Lys Arg Tyr Ala Phe Leu Phe Pro Gly Gln Gly Ser Gln Tyr  
 1 5 10 15  
 Val Gly Met Gly Gln Asp Leu Tyr Met Glu Tyr Pro Glu Val Arg Glu  
 20 25 30  
 Leu Phe Asp Phe Ala Asn Glu Arg Leu Gly Phe Ser Leu Thr Ser Ile  
 35 40 45  
 Met Phe Glu Gly Pro Glu Asp Leu Leu Met Glu Thr Val His Ser Gln  
 50 55 60  
 Leu Ala Ile Tyr Leu His Ser Met Ala Val Val Lys Val Leu Ser Gln  
 65 70 75 80  
 Arg Ser Ser Ile Gln Pro Ser Leu Val Ser Gly Leu Ser Leu Gly Glu  
 85 90 95  
 Tyr Thr Ala Leu Val Ala Ser Asp Arg Ile Ser Val Leu Asp Gly Leu  
 100 105 110  
 Glu Leu Val Arg Lys Arg Gly Gln Leu Met Asn Glu Ala Cys Asn Gln  
 115 120 125  
 Ser Pro Gly Ala Met Ala Ala Leu Leu Gly Leu Pro Ser Glu Val Ile  
 130 135 140  
 Glu Glu Asn Ile Thr Ser Leu Gly Gln Gly Ile Trp Ile Ala Asn Tyr  
 145 150 155 160  
 Asn Ala Pro Lys Gln Leu Val Val Ala Gly Ile Ala Glu Lys Val Asp  
 165 170 175  
 Gln Ala Ile Glu Leu Phe Arg Asp Leu Gly Cys Lys Lys Ala Val Arg  
 180 185 190  
 Leu Lys Val Ser Gly Ala Phe His Thr Pro Leu Met Gln Val Ala Gln  
 195 200 205  
 Asp Gly Leu Ala Pro Asp Ile Tyr Ala Leu Cys Met Lys Asp Ser Ser  
 210 215 220  
 Leu Pro Leu Val Ser His Val Val Gly Lys Ser Leu Val Asn Thr Glu  
 225 230 235 240  
 Glu Met Arg Glu Cys Leu Ala Arg Gln Met Thr Ser Pro Thr Leu Trp  
 245 250 255  
 Tyr Gln Ser Cys Tyr His Ile Glu Ser Glu Val Asp Glu Phe Leu Glu  
 260 265 270  
 Leu Gly Pro Gly Lys Val Leu Ala Gly Leu Asn Arg Ser Ile Gly Ile  
 275 280 285  
 Ser Lys Pro Ile Thr Ser Leu Gly Thr Phe Ala Gln Ile Glu Lys Phe  
 290 295 300  
 Leu Ser Glu Val  
 305

&lt;210&gt;311

&lt;211&gt;116

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;311

Leu Tyr His Phe Leu Asp Ser Ser Thr Arg Leu Tyr Phe Pro Ile Lys  
 1 5 10 15  
 Arg Ser Leu Ala Gln Ala His Leu Gly Ile Glu Asp Val Pro Thr Phe  
 20 25 30  
 Asp Cys Gln Ala Ala Cys Thr Gly Tyr Leu Tyr Gly Leu Ser Val Ala  
 35 40 45  
 Lys Ala Tyr Val Glu Ser Gly Thr Tyr Asn His Val Leu Leu Ile Ala  
 50 55 60  
 Ala Asp Lys Leu Ser Ser Phe Val Asp Tyr Thr Asp Arg Asn Thr Cys  
 65 70 75 80  
 Val Leu Phe Gly Asp Gly Gly Ala Ala Cys Val Ile Gly Glu Ser Arg  
 85 90 95  
 Pro Gly Ser Leu Glu Ile Asn Arg Leu Ser Leu Gly Ala Asp Gly Lys  
 100 105 110  
 Leu Gly Glu Tyr  
 115  
 <210>312

&lt;211&gt;105

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;312

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Met Trp Phe Ser Val Asn Lys Asn Lys Lys Ala Ala Ile Trp Ala Thr
 1           5           10           15
Gly Ser Tyr Leu Pro Glu Lys Val Leu Ser Asn Ala Asp Leu Glu Lys
          20           25           30
Met Val Asp Thr Ser Asp Glu Trp Ile Val Thr Arg Thr Gly Ile Lys
          35           40           45
Glu Arg Arg Ile Ala Gly Pro Gln Glu Tyr Thr Ser Leu Met Gly Ala
          50           55           60
Ile Ala Ala Glu Lys Ala Ile Ala Asn Ala Gly Leu Ser Lys Asp Gln
          65           70           75           80
Ile Asp Cys Ile Ile Phe Ser Thr Ala Ala Pro Asp Tyr Ile Phe Pro
          85           90           95
Ser Ser Gly Val Leu Leu Lys His Ile
          100           105

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&lt;210&gt;313

&lt;211&gt;230

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;313

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Arg Lys Lys Leu Val Tyr Tyr Ser Glu Ser Leu Tyr Ser Asn Leu Asn
 1           5           10           15
Leu Gly Pro Arg Pro Glu Cys Lys Asn Lys Ile His Ile Thr Met Thr
          20           25           30
Arg Tyr Pro Asp Tyr Leu Ser Lys Leu Ile Phe Phe Leu Arg Lys Leu
          35           40           45
Pro Gly Ile Gly Phe Lys Thr Ala Glu Lys Leu Ala Phe Glu Leu Ile
          50           55           60
Ser Trp Asp Ser Glu Gln Leu Lys Ile Leu Gly Asn Ala Phe His Asn
          65           70           75           80
Val Ala Ser Glu Arg Ser His Cys Pro Leu Cys Phe Thr Leu Lys Glu
          85           90           95
Ser Lys Glu Ala Asp Cys His Phe Cys Arg Glu Glu Arg Asp Asn Gln
          100           105           110
Ser Leu Cys Ile Val Ala Ser Pro Lys Asp Val Phe Phe Leu Glu Arg
          115           120           125
Ser Lys Val Phe Lys Gly Arg Tyr His Val Leu Gly Ser Leu Leu Ser
          130           135           140
Pro Ile Thr Gly Lys His Ile Glu Asn Glu Arg Leu Ser Ile Leu Lys
          145           150           155           160
Ser Arg Ile Glu Thr Leu Cys Pro Lys Glu Ile Ile Leu Ala Ile Asp
          165           170           175
Ala Thr Leu Glu Gly Asp Ala Thr Ala Leu Phe Leu Lys Gln Glu Leu
          180           185           190
Gln His Phe Ser Val Asn Ile Ser Arg Leu Ala Leu Gly Leu Pro Ile
          195           200           205
Gly Leu Ser Phe Asp Tyr Val Asp Ser Gly Thr Leu Ala Arg Ala Phe
          210           215           220
Ser Gly Arg His Ser Tyr
          225           230

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&lt;210&gt;314

&lt;211&gt;795

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;314

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Gly Arg Leu Leu Gly Met Leu Ile Met Arg Asn Lys Val Ile Leu Gln
 1           5           10           15
Ile Ser Ile Leu Ala Leu Ile Gln Thr Pro Leu Thr Leu Phe Ser Thr
          20           25           30
Glu Lys Val Lys Glu Gly His Val Val Asp Ser Ile Thr Ile Ile
          35           40           45

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Thr Glu Gly Glu Asn Ala Ser Asn Lys His Pro Leu Pro Lys Leu Lys  
 50 55 60  
 Thr Arg Ser Gly Ala Leu Phe Ser Gln Leu Asp Phe Asp Glu Asp Leu  
 65 70 75 80  
 Arg Ile Leu Ala Lys Glu Tyr Asp Ser Val Glu Pro Lys Val Glu Phe  
 85 90 95  
 Ser Glu Gly Lys Thr Asn Ile Ala Leu His Leu Ile Ala Lys Pro Ser  
 100 105 110  
 Ile Arg Asn Ile His Ile Ser Gly Asn Gln Val Val Pro Glu His Lys  
 115 120 125  
 Ile Leu Lys Thr Leu Gln Ile Tyr Arg Asn Asp Leu Phe Glu Arg Glu  
 130 135 140  
 Lys Phe Leu Lys Gly Leu Asp Asp Leu Arg Thr Tyr Tyr Leu Lys Arg  
 145 150 155 160  
 Gly Tyr Phe Ala Ser Val Asp Tyr Ser Leu Glu His Asn Gln Glu  
 165 170 175  
 Lys Gly His Ile Asp Val Leu Ile Lys Ile Asn Glu Gly Pro Cys Gly  
 180 185 190  
 Lys Ile Lys Gln Leu Thr Phe Ser Gly Ile Ser Arg Ser Glu Lys Ser  
 195 200 205  
 Asp Ile Gln Glu Phe Ile Gln Thr Lys Gln His Ser Thr Thr Thr Ser  
 210 215 220  
 Trp Phe Thr Gly Ala Gly Leu Tyr His Pro Asp Ile Val Glu Gln Asp  
 225 230 235 240  
 Ser Leu Ala Ile Thr Asn Tyr Leu His Asn Asn Gly Tyr Ala Asp Ala  
 245 250 255  
 Ile Val Asn Ser His Tyr Asp Leu Asp Asp Lys Gly Asn Ile Leu Leu  
 260 265 270  
 Tyr Met Asp Ile Asp Arg Gly Ser Arg Tyr Thr Leu Gly His Val His  
 275 280 285  
 Ile Gln Gly Phe Glu Val Leu Pro Lys Arg Leu Ile Glu Lys Gln Ser  
 290 295 300  
 Gln Val Gly Pro Asn Asp Leu Tyr Cys Pro Asp Lys Ile Trp Asp Gly  
 305 310 315 320  
 Ala His Lys Ile Lys Gln Thr Tyr Ala Lys Tyr Gly Tyr Ile Asn Thr  
 325 330 335  
 Asn Val Asp Val Leu Phe Ile Pro His Ala Thr Arg Pro Ile Tyr Asp  
 340 345 350  
 Val Thr Tyr Glu Val Ser Glu Gly Ser Pro Tyr Lys Val Gly Leu Ile  
 355 360 365  
 Lys Ile Thr Gly Asn Thr His Thr Lys Ser Asp Val Ile Leu His Glu  
 370 375 380  
 Thr Ser Leu Phe Pro Gly Asp Thr Phe Asn Arg Leu Lys Leu Glu Asp  
 385 390 395 400  
 Thr Glu Gln Arg Leu Arg Asn Thr Gly Tyr Phe Gln Ser Val Ser Val  
 405 410 415  
 Tyr Thr Val Arg Ser Gln Leu Asp Pro Met Gly Asn Ala Asp Gln Tyr  
 420 425 430  
 Arg Asp Ile Phe Val Glu Val Lys Glu Thr Thr Thr Gly Asn Leu Gly  
 435 440 445  
 Leu Phe Leu Gly Phe Ser Ser Leu Asp Asn Leu Phe Gly Gly Ile Glu  
 450 455 460  
 Leu Ser Glu Ser Asn Phe Asp Leu Phe Gly Ala Arg Asn Ile Phe Ser  
 465 470 475 480  
 Lys Gly Phe Arg Cys Leu Arg Gly Gly Gly Glu His Leu Phe Leu Lys  
 485 490 495  
 Ala Asn Phe Gly Asp Lys Val Thr Asp Tyr Thr Leu Lys Trp Thr Lys  
 500 505 510  
 Pro His Phe Leu Asn Thr Pro Trp Ile Leu Gly Ile Glu Leu Asp Lys  
 515 520 525  
 Ser Ile Asn Arg Ala Leu Ser Lys Asp Tyr Ala Val Gln Thr Tyr Gly  
 530 535 540  
 Gly Asn Val Ser Thr Thr Tyr Ile Leu Asn Glu His Leu Lys Tyr Gly  
 545 550 555 560

Leu Phe Tyr Arg Gly Ser Gln Thr Ser Leu His Glu Lys Arg Lys Phe  
 565 570 575  
 Leu Leu Gly Pro Asn Ile Asp Ser Asn Lys Gly Phe Val Ser Ala Ala  
 580 585 590  
 Gly Val Asn Leu Asn Tyr Asp Ser Val Asp Ser Pro Arg Thr Pro Thr  
 595 600 605  
 Thr Gly Ile Arg Gly Gly Val Thr Phe Glu Val Ser Gly Leu Gly Gly  
 610 615 620  
 Thr Tyr His Phe Thr Lys Leu Ser Leu Asn Ser Ser Ile Tyr Arg Lys  
 625 630 635 640  
 Leu Thr Arg Lys Gly Ile Leu Lys Ile Lys Gly Glu Ala Gln Phe Ile  
 645 650 655  
 Lys Pro Tyr Ser Asn Thr Thr Ala Glu Gly Val Pro Val Ser Glu Arg  
 660 665 670  
 Phe Phe Leu Gly Gly Glu Thr Thr Val Arg Gly Tyr Lys Ser Phe Ile  
 675 680 685  
 Ile Gly Pro Lys Tyr Ser Ala Thr Glu Pro Gln Gly Gly Leu Ser Ser  
 690 695 700  
 Leu Leu Ile Ser Glu Glu Phe Gln Tyr Pro Leu Ile Arg Gln Pro Asn  
 705 710 715 720  
 Ile Ser Ala Phe Val Phe Leu Asp Ser Gly Phe Val Gly Leu Gln Glu  
 725 730 735  
 Tyr Lys Ile Ser Leu Lys Asp Leu Arg Ser Ser Ala Gly Phe Gly Leu  
 740 745 750  
 Arg Phe Asp Val Met Asn Asn Val Pro Val Met Leu Gly Phe Gly Trp  
 755 760 765  
 Pro Phe Arg Pro Thr Glu Thr Leu Asn Gly Glu Lys Ile Asp Val Ser  
 770 775 780  
 Gln Arg Phe Phe Phe Ala Leu Gly Gly Met Phe  
 785 790 795

&lt;210&gt;315

&lt;211&gt;158

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;315

Asp Gln Gln Ala Gln Leu Asn Ala Asn Leu Gly Tyr Val Asn Leu Lys  
 1 5 10 15  
 Arg Cys Leu Glu Ser Asp Leu Gly Lys Lys Glu Thr Glu Glu Leu  
 20 25 30  
 Glu Ala Xaa Lys Gln Gln Phe Val Lys Asn Ala Glu Lys Ile Glu Glu  
 35 40 45  
 Glu Leu Thr Ser Ile Tyr Asn Lys Leu Gln Asp Glu Asp Tyr Met Glu  
 50 55 60  
 Ser Leu Ser Asp Ser Ala Ser Glu Glu Leu Arg Lys Lys Phe Glu Asp  
 65 70 75 80  
 Leu Ser Gly Glu Tyr Asn Ala Tyr Gln Ser Gln Tyr Tyr Gln Ser Ile  
 85 90 95  
 Asn Gln Ser Asn Val Lys Arg Ile Gln Lys Leu Ile Gln Glu Val Lys  
 100 105 110  
 Ile Ala Ala Glu Ser Val Arg Ser Lys Glu Lys Leu Glu Ala Ile Leu  
 115 120 125  
 Asn Glu Glu Ala Val Leu Ala Ile Ala Pro Gly Thr Asp Lys Thr Thr  
 130 135 140  
 Glu Ile Ile Ala Ile Leu Asn Glu Ser Phe Lys Lys Gln Asn  
 145 150 155

&lt;210&gt;316

&lt;211&gt;367

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;316

Ser Lys Phe Lys Glu Phe Ser Met Ser Glu Ala Pro Val Tyr Thr Leu  
 1 5 10 15  
 Lys Gln Leu Ala Glu Leu Leu Gln Val Glu Val Gln Gly Asn Ile Glu  
 20 25 30

Thr Pro Ile Ser Gly Val Glu Asp Ile Ser Gln Ala Gln Pro His His  
 35 40 45  
 Ile Ala Phe Leu Asp Asn Glu Lys Tyr Ser Ser Phe Leu Lys Asn Thr  
 50 55 60  
 Lys Ala Gly Ala Ile Ile Leu Ser Arg Ser Gln Ala Met Gln His Ala  
 65 70 75 80  
 His Leu Lys Lys Asn Phe Leu Ile Thr Asn Glu Ser Pro Ser Leu Thr  
 85 90 95  
 Phe Gln Lys Cys Ile Glu Leu Phe Ile Glu Pro Val Thr Ser Gly Phe  
 100 105 110  
 Pro Gly Ile His Pro Thr Ala Val Ile His Pro Thr Ala Arg Ile Glu  
 115 120 125  
 Lys Asn Val Thr Ile Glu Pro Tyr Val Val Ile Ser Gln His Ala His  
 130 135 140  
 Ile Gly Ser Asp Thr Tyr Ile Gly Ala Gly Ser Val Ile Gly Ala His  
 145 150 155 160  
 Ser Val Leu Gly Ala Asn Cys Leu Ile His Pro Lys Val Val Ile Arg  
 165 170 175  
 Glu Arg Val Leu Met Gly Asn Arg Val Val Val Gln Pro Gly Ala Val  
 180 185 190  
 Leu Gly Ser Cys Gly Phe Gly Tyr Ile Thr Asn Ala Phe Gly His His  
 195 200 205  
 Lys Pro Leu Lys His Leu Gly Tyr Val Ile Val Gly Asp Asp Val Glu  
 210 215 220  
 Ile Gly Ala Asn Thr Thr Ile Asp Arg Gly Arg Phe Lys Asn Thr Val  
 225 230 235 240  
 Ile His Glu Gly Thr Lys Ile Asp Asn Gln Val Gln Val Ala His His  
 245 250 255  
 Val Glu Ile Gly Lys His Ser Ile Ile Val Ala Gln Ala Gly Ile Ala  
 260 265 270  
 Gly Ser Thr Lys Ile Gly Glu His Val Ile Ile Gly Gly Gln Thr Gly  
 275 280 285  
 Ile Thr Gly His Ile Ser Ile Ala Asp His Val Ile Met Ile Ala Gln  
 290 295 300  
 Thr Gly Val Thr Lys Ser Ile Thr Ser Pro Gly Ile Tyr Gly Gly Ala  
 305 310 315 320  
 Pro Ala Arg Pro Tyr Gln Glu Thr His Arg Leu Ile Ala Lys Ile Arg  
 325 330 335  
 Asn Leu Pro Lys Thr Glu Glu Arg Leu Ser Lys Leu Glu Lys Gln Val  
 340 345 350  
 Arg Asp Leu Ser Thr Pro Ser Leu Ala Glu Ile Pro Ser Glu Ile  
 355 360 365

&lt;210&gt;317

&lt;211&gt;354

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;317

Arg Glu Gln Lys Gly Leu His His Met Asp Val Ser Arg Lys Ile Asn  
 1 5 10 15  
 Arg His Thr Gln Phe Tyr Val Asp Ser Ile Asp Gly Val Ile Lys Asn  
 20 25 30  
 Phe Asp His Lys Pro Ser Glu Asp Lys Ser Arg Asp His Glu Glu Leu  
 35 40 45  
 Glu Glu Lys Leu Leu Thr Ile Thr Lys Arg Ile Val Ala Ser Ala Gln  
 50 55 60  
 Glu Phe Gln Asn Arg Lys Thr Asp Ser Lys Asn Tyr Tyr Leu Lys Lys  
 65 70 75 80  
 Thr Gln Trp Leu Pro Phe Lys Asn Glu Glu Leu Glu Gln Thr Lys Glu  
 85 90 95  
 Leu Phe Ala Met Leu Thr Ser Met Asp Lys Lys Ile Ala Gln Leu Phe  
 100 105 110  
 Phe Tyr Ser Pro Gly Cys Ser Ser Asp Trp Val Glu Phe Thr Glu Val  
 115 120 125  
 Ile Cys His Leu Asn Asp Ser Ile Gly Leu Gly Gly Val Leu Leu Cys

130 135 140  
 Cys Gly Leu Phe Glu Gln Gln Cys Glu His Val Val Thr Val Asn Lys  
 145 150 155 160  
 Lys Leu Asp Leu Pro Leu Leu Leu Gly Thr Thr Val Val Asn Ser Leu  
 165 170 175  
 Arg Tyr Tyr Leu Thr Tyr Arg Asn Ile Ser Leu Leu Asn Cys Gln Ser  
 180 185 190  
 Met Ser Glu Leu Gly Lys Glu Leu Gly Asp Val Leu Lys Gln His Gly  
 195 200 205  
 Val Ala Phe Thr Leu Ile Phe Lys Glu Ile Val Asp Ile Asp Leu Leu  
 210 215 220  
 Asn Tyr Val Lys Leu Ile Gln Gly Leu Lys Arg Ser Gly Asn Ile Gln  
 225 230 235 240  
 Ala Arg Ile Tyr Asp Asn Asp Val Pro Thr Leu Pro Ser Val Ser Ser  
 245 250 255  
 Ser Pro Ile Ala Leu Arg Tyr Ser Leu Ala Asn Thr Ile Arg Gly Leu  
 260 265 270  
 Ala Leu His Val Asp Phe Ser Ser Leu Lys Phe Ile Ser Pro Ser Ile  
 275 280 285  
 Leu Ser Asn Thr Glu His Thr Ala Lys Ala Leu Asn Ser Gly Gly Glu  
 290 295 300  
 Cys Phe Ile Phe Ser Asn Leu Asp Glu Phe Asn Leu Gly Met Lys Ile  
 305 310 315 320  
 Val Met Gln Leu Leu Arg Thr Gly Lys Ile Ser Pro Glu Ile Leu Asn  
 325 330 335  
 Lys Asn Ile Met Lys Ile Leu Met Ile Lys Arg Arg Val Arg Ser Leu  
 340 345 350  
 Tyr Ile

&lt;210&gt;318

&lt;211&gt;342

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;318

Met Asp Ser Ser Ala Pro Tyr Asn Ile Ala Ser Gln Gly Thr Glu Lys  
 1 5 10 15  
 Ser Thr Val Glu Arg Ile Leu Asp Leu Tyr Gly Pro Ala Ser Cys Ile  
 20 25 30  
 Lys Phe Leu Lys Gln Met Val Leu Ile Arg Glu Phe Glu Ala Arg Gly  
 35 40 45  
 Glu Glu Ala Tyr Leu Glu Gly Leu Val Gly Gly Phe Tyr His Ser Tyr  
 50 55 60  
 Ala Gly Gln Glu Ala Val Ala Thr Ala Ala Ile Ala Asn Thr Gly Leu  
 65 70 75 80  
 Asp Pro Trp Val Phe Ser Ser Tyr Arg Cys His Ala Leu Ala Ile Leu  
 85 90 95  
 Leu Asn Ile Pro Leu Gln Glu Ile Ala Ala Glu Leu Leu Gly Lys Glu  
 100 105 110  
 Thr Gly Cys Ala Leu Gly Arg Gly Gly Ser Met His Met Cys Gly Pro  
 115 120 125  
 Asn Phe Pro Gly Gly Phe Gly Ile Val Gly Gly Gln Ile Pro Leu Ala  
 130 135 140  
 Ala Gly Ala Ala Phe Thr Ile Lys Tyr Gln Glu Gln Lys Asn Arg Val  
 145 150 155 160  
 Ser Leu Cys Phe Ile Gly Asp Gly Ala Val Ala Gln Gly Val Phe His  
 165 170 175  
 Glu Thr Leu Asn Phe Val Ser Leu His Gln Leu Pro Leu Met Leu Ile  
 180 185 190  
 Ile Glu Asn Asn Gly Trp Ser Met Gly Thr Ser Leu Asn Arg Ala Val  
 195 200 205  
 Ala Lys Gln Pro Ile Ala Glu Ser Gln Gly Ser Ser Tyr Asp Ile Arg  
 210 215 220  
 Ala Val Thr Val Asn Gly Phe Asp Leu Phe Asn Ser Leu Leu Gly Phe  
 225 230 235 240

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Ile | Thr | Leu | Lys | Gly | Glu | Val | Pro | Thr | Glu | Glu | Tyr | Leu | Val | Pro |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ile | Gly | Lys | Ala | His | Arg | Val | Gln | Glu | Gly | Asn | Asp | Leu | Thr | Ile | Ile |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Thr | Tyr | Ser | Arg | Met | Val | Ser | Ile | Thr | Lys | Glu | Ala | Cys | Ser | Leu | Ala |
|     |     |     | 35  |     |     |     |     | 40  |     |     |     | 45  |     |     |     |
| Lys | Lys | Arg | Trp | Gly | Leu | Ser | Ile | Glu | Ile | Ile | Asp | Leu | Arg | Thr | Ile |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Lys | Pro | Leu | Asp | Ile | Ser | Thr | Ile | Leu | Ser | Ser | Val | Arg | Lys | Thr | Ser |
|     | 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Arg | Cys | Ile | Val | Ile | Glu | Glu | Gly | His | Tyr | Phe | Ala | Gly | Ile | Ser | Ser |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Glu | Ile | Ile | Ala | Leu | Ile | Thr | Glu | His | Val | Phe | Asp | Ser | Leu | Asp | Ala |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Pro | Pro | Leu | Arg | Val | Cys | Gln | Lys | Glu | Thr | Pro | Met | Pro | Tyr | Ser | Lys |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ile | Leu | Glu | Gln | Ala | Thr | Leu | Pro | Asn | Val | Asn | Arg | Ile | Leu | Asp | Thr |
|     | 130 |     |     |     |     |     | 135 |     |     |     | 140 |     |     |     |     |

Ile Glu Lys Val Met Arg  
 145 150  
 <210>321  
 <211>432  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>321  
 Gly Lys Phe Val Ile Ser Leu Leu Lys Met Pro Lys Leu Ser Pro Thr  
 1 5 10 15  
 Met Glu Val Gly Thr Ile Val Lys Trp His Lys Lys Ser Asn Asp Gln  
 20 25 30  
 Val Ser Phe Gly Asp Val Ile Val Glu Ile Ser Thr Asp Lys Ala Ile  
 35 40 45  
 Leu Glu His Thr Ala Asn Glu Asp Gly Trp Ile Arg Glu Ile Leu Arg  
 50 55 60  
 His Glu Gly Glu Lys Ile Val Ile Gly Thr Pro Ile Ala Val Leu Ser  
 65 70 75 80  
 Thr Glu Ala Asn Glu Pro Phe Asn Leu Glu Glu Leu Leu Pro Lys Thr  
 85 90 95  
 Glu Pro Ser Asn Leu Glu Ala Ser Pro Lys Gly Ser Ser Glu Glu Val  
 100 105 110  
 Ser Pro Ala Thr Thr Pro Gln Ala Ala Ser Ala Thr Phe Thr Ala Val  
 115 120 125  
 Thr Phe Lys Pro Glu Pro Pro Leu Ser Ser Pro Leu Val Phe Lys His  
 130 135 140  
 Val Gly Thr Thr Asn Asn Leu Ser Pro Leu Ala Arg Gln Leu Ala Lys  
 145 150 155 160  
 Glu Lys Asn Ile Asp Val Ser Ser Ile Gln Gly Ser Gly Pro Gly Gly  
 165 170 175  
 Arg Ile Val Lys Lys Asp Leu Glu Lys Ala Pro Pro Lys Ser Ile Ala  
 180 185 190  
 Gly Phe Gly Tyr Pro Glu Ser Pro Glu Val Pro Pro Gly Ser Tyr His  
 195 200 205  
 Glu Glu Asn Leu Ser Pro Ile Arg Glu Val Ile Ala Ala Arg Leu Gln  
 210 215 220  
 Ala Ala Lys Ile Ser Ile Pro His Phe Tyr Val Arg Gln Gln Val Tyr  
 225 230 235 240  
 Ala Ser Pro Leu Leu Asn Leu Leu Lys Glu Leu Gln Ala Gln Gly Ile  
 245 250 255  
 Lys Leu Ser Ile Asn Asp Cys Ile Val Arg Ala Cys Ala Leu Ala Leu  
 260 265 270  
 Lys Glu Phe Pro Ser Ile Asn Ser Gly Phe Asn Ser Val Asp Asn Lys  
 275 280 285  
 Ile Val Arg Phe Asp Thr Ile Asp Ile Ser Ile Ala Val Ala Ile Pro  
 290 295 300  
 Asp Gly Ile Ile Thr Pro Ile Ile Arg Cys Ala Asp Arg Lys Asn Leu  
 305 310 315 320  
 Gly Met Ile Ser Ala Glu Ile Lys Ser Leu Ala Leu Lys Ala Arg Asn  
 325 330 335  
 Gln Ser Leu Gln Asp Thr Glu Tyr Lys Gly Gly Ser Phe Cys Val Ser  
 340 345 350  
 Asn Leu Gly Met Thr Gly Ile Thr Glu Phe Thr Ala Ile Val Asn Pro  
 355 360 365  
 Pro Gln Ala Ala Ile Leu Ala Val Gly Ser Val Thr Glu Gln Ala Leu  
 370 375 380  
 Val Leu Asp Gly Glu Ile Thr Ile Gly Ser Thr Cys Asn Leu Thr Leu  
 385 390 395 400  
 Ser Val Asp His Arg Val Ile Asp Gly Tyr Pro Ala Ala Met Phe Met  
 405 410 415  
 Lys Arg Leu Gln Lys Ile Leu Glu Ala Pro Ala Val Leu Leu Leu Asn  
 420 425 430  
 <210>322  
 <211>104  
 <212>PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;322

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Ile Asp Glu Thr Ser Met Phe Phe Ser Phe Ala Ser Cys Leu Ala Asn
 1           5           10           15
Gly Glu Arg Leu Phe Val Val Pro Thr Cys Leu Lys Thr Lys Gly Glu
           20           25           30
Glu Arg Gly Gly Ser Gly Leu Lys Val Thr Ala Val Asn Val Ala Glu
           35           40           45
Ala Ala Cys Gly Val Val Ala Gly Glu Thr Ser Ser Glu Glu Pro Phe
           50           55           60
Gly Asp Ala Ser Arg Leu Glu Gly Ser Val Leu Gly Arg Ser Ser Ser
           65           70           75           80
Arg Leu Lys Gly Ser Leu Ala Ser Val Glu Ser Thr Ala Ile Gly Val
           85           90           95
Pro Ile Thr Ile Phe Ser Pro Ser
           100

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&lt;210&gt;323

&lt;211&gt;828

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;323

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Asn Gly Cys Ile Val Glu Asp Phe Ser Ser Phe Asp Lys Asn Lys Val
 1           5           10           15
Ser Val Asp Ser Met Lys Arg Ala Ile Leu Asp Arg Leu Tyr Leu Ser
           20           25           30
Val Val Gln Ser Pro Glu Ser Ala Ser Pro Arg Asp Ile Phe Thr Ala
           35           40           45
Val Ala Lys Thr Val Met Glu Trp Leu Ala Lys Gly Trp Leu Lys Thr
           50           55           60
Gln Asn Gly Tyr Tyr Lys Asn Asp Val Lys Arg Val Tyr Tyr Leu Ser
           65           70           75           80
Met Glu Phe Leu Leu Gly Arg Ser Leu Thr Ser Asn Leu Leu Asn Leu
           85           90           95
Gly Ile Leu Asp Leu Val Arg Lys Ala Leu Lys Thr Leu Asn Tyr Asp
           100          105          110
Phe Asp His Leu Val Glu Met Glu Ser Asp Ala Gly Leu Gly Asn Gly
           115          120          125
Gly Leu Gly Arg Leu Ala Ala Cys Tyr Leu Asp Ser Met Ala Thr Leu
           130          135          140
Ala Val Pro Ala Tyr Gly Tyr Gly Ile Arg Tyr Asp Tyr Gly Ile Phe
           145          150          155          160
Asp Gln Arg Ile Val Asn Gly Tyr Gln Glu Glu Ala Pro Asp Glu Trp
           165          170          175
Leu Arg Tyr Gly Asn Pro Trp Glu Ile Cys Arg Gly Glu Tyr Leu Tyr
           180          185          190
Pro Val Arg Phe Tyr Gly Arg Val Ile His Tyr Thr Asp Ser Arg Gly
           195          200          205
Lys Gln Val Ala Asp Leu Val Asp Thr Gln Glu Val Leu Ala Met Ala
           210          215          220
Tyr Asp Ile Pro Ile Pro Gly Tyr Gly Asn Asp Thr Val Asn Ser Leu
           225          230          235          240
Arg Leu Trp Gln Ala Gln Ser Pro Arg Gly Phe Glu Phe Ser Tyr Phe
           245          250          255
Asn His Gly Asn Tyr Ile Gln Ala Ile Glu Asp Ile Ala Leu Ile Glu
           260          265          270
Asn Ile Ser Arg Val Leu Tyr Pro Asn Asp Ser Ile Thr Glu Gly Gln
           275          280          285
Glu Leu Arg Leu Lys Gln Glu Tyr Phe Leu Val Ser Ala Thr Ile Gln
           290          295          300
Asp Ile Ile Arg Arg Tyr Thr Lys Thr His Ile Cys Leu Asp Asn Leu
           305          310          315          320
Ala Asp Lys Val Val Val Gln Leu Asn Asp Thr His Pro Ala Leu Gly
           325          330          335
Ile Ala Glu Met Met His Ile Leu Val Asp Arg Glu Glu Leu Pro Trp

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<210>324
<211>86
<212>PRT
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&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;324

Val Phe Ser His Pro Leu Ala Asn His Ser Ile Thr Val Phe Ala Thr  
 1 5 10 15  
 Ala Val Lys Ile Ser Leu Gly Asp Ala Asp Ser Gly Asp Cys Thr Thr  
 20 25 30  
 Leu Lys Tyr Arg Arg Ser Lys Ile Ala Arg Phe Ile Glu Ser Thr Leu  
 35 40 45  
 Thr Leu Phe Leu Ser Lys Leu Glu Lys Ser Ser Thr Met Gln Pro Phe  
 50 55 60  
 Gln Ile Pro Ser Arg Thr Leu His Met Arg Asn Leu Lys Lys Lys Lys  
 65 70 75 80  
 Glu Leu Arg Leu Gly Lys  
 85

&lt;210&gt;325

&lt;211&gt;128

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;325

Phe Phe Thr Gln Glu Asn Asn Met Ala Thr Val Ala Gln Thr Pro Gln  
 1 5 10 15  
 Thr Thr Gln Pro Gln Pro Ser Val Ser His Lys Ala Thr His Arg Tyr  
 20 25 30  
 Cys Ser Trp Val Phe Phe Lys Pro Ile Leu Val Ser Leu Gly Leu Leu  
 35 40 45  
 Leu Ala Ser Leu Thr Thr Leu Gly Leu Val Ile Ala Ser Gly Val Thr  
 50 55 60  
 Leu Ser Leu Gly Ile Gly His Cys Ser Cys Tyr Thr Asp Ser Thr Ala  
 65 70 75 80  
 Gly Ile Ala Leu Val Leu Ala Phe Asn His Ile Arg Gln Phe Lys Gln  
 85 90 95  
 Ala Arg Thr Ala Glu Leu Asn Ser Met Lys Met Ile Ser Ala Pro Ala  
 100 105 110  
 Ala Ala Thr Val Gln Lys Gln Lys Leu Glu Asp Arg Tyr Ser Ser Lys  
 115 120 125

&lt;210&gt;326

&lt;211&gt;448

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;326

Phe Met Arg Ala Trp Glu Glu Phe Leu Leu Leu Gln Glu Lys Glu Ile  
 1 5 10 15  
 Gly Thr Asn Thr Val Asp Lys Trp Leu Arg Ser Leu Lys Val Leu Cys  
 20 25 30  
 Phe Asp Ala Cys Asn Leu Tyr Leu Glu Ala Gln Asp Ser Phe Gln Ile  
 35 40 45  
 Thr Trp Phe Glu Glu His Ile Arg His Lys Val Lys Ser Gly Leu Val  
 50 55 60  
 Asn Asn Asn Asn Lys Pro Ile Arg Val His Val Thr Ser Val Asp Lys  
 65 70 75 80  
 Ala Ala Pro Phe Tyr Lys Glu Lys Gln Met Gln Gln Glu Lys Thr Ala  
 85 90 95  
 Tyr Phe Thr Met His Tyr Gly Ser Val Asn Pro Glu Met Thr Phe Ser  
 100 105 110  
 Asn Phe Leu Val Thr Pro Glu Asn Asp Leu Pro Phe Arg Val Leu Gln  
 115 120 125  
 Glu Phe Thr Lys Ser Pro Asp Glu Asn Gly Gly Val Thr Phe Asn Pro  
 130 135 140  
 Ile Tyr Leu Phe Gly Pro Glu Gly Ser Gly Lys Thr His Leu Met Gln  
 145 150 155 160  
 Ser Ala Ile Ser Val Leu Arg Glu Ser Gly Gly Lys Ile Leu Tyr Val  
 165 170 175  
 Ser Ser Asp Leu Phe Thr Glu His Leu Val Ser Ala Ile Arg Ser Gly  
 180 185 190

Glu Met Gln Lys Phe Arg Ser Phe Tyr Arg Asn Ile Asp Ala Leu Phe  
 195 200 205  
 Ile Glu Asp Ile Glu Val Phe Ser Gly Lys Ser Ala Thr Gln Glu Glu  
 210 215 220  
 Phe Phe His Thr Phe Asn Ser Leu His Ser Glu Gly Lys Leu Ile Val  
 225 230 235 240  
 Val Ser Ser Ser Tyr Ala Pro Val Asp Leu Val Ala Val Glu Asp Arg  
 245 250 255  
 Leu Ile Ser Arg Phe Glu Trp Gly Val Ala Ile Pro Ile His Pro Leu  
 260 265 270  
 Val Gln Glu Gly Leu Arg Ser Phe Leu Met Arg Gln Val Glu Arg Leu  
 275 280 285  
 Ser Ile Arg Ile Gln Glu Thr Ala Leu Asp Phe Leu Ile Tyr Ala Leu  
 290 295 300  
 Ser Ser Asn Val Lys Thr Leu Leu His Ala Leu Asn Leu Leu Ala Lys  
 305 310 315 320  
 Arg Val Met Tyr Lys Lys Leu Ser His Gln Leu Leu Tyr Glu Asp Asp  
 325 330 335  
 Val Lys Thr Leu Leu Lys Asp Val Leu Glu Ala Ala Gly Ser Val Arg  
 340 345 350  
 Leu Thr Pro Leu Lys Ile Ile Arg Asn Val Ala Gln Tyr Tyr Gly Val  
 355 360 365  
 Ser Gln Glu Ser Ile Leu Gly Arg Ser Gln Ser Arg Glu Tyr Val Leu  
 370 375 380  
 Pro Arg Gln Val Ala Met Tyr Phe Cys Arg Gln Lys Leu Ser Leu Ser  
 385 390 395 400  
 Tyr Val Arg Ile Gly Asp Val Phe Ser Arg Asp His Ser Thr Val Ile  
 405 410 415  
 Ser Ser Ile Arg Leu Ile Glu Gln Lys Ile Glu Glu Asn Ser His Asp  
 420 425 430  
 Ile His Met Ala Ile Gln Asp Ile Ser Xaa Glu Phe Lys Phe Leu Ala  
 435 440 445

&lt;210&gt;327

&lt;211&gt;808

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;327

Tyr Phe Asp Leu Leu Ser Leu Ile Phe Arg Val Tyr Gln Met Asn Lys  
 1 5 10 15  
 Arg Thr Leu Leu Phe Val Ser Leu Ile Gly Ile Ala Phe Val Gly Cys  
 20 25 30  
 Gln Ile Phe Phe Gly Tyr Asn Glu Phe Arg Ser Cys Lys Asn Leu Ala  
 35 40 45  
 Glu Lys Gln Arg Lys Ile Ser Glu Gln Thr Leu Ala Ala Val Glu Ser  
 50 55 60  
 Val Gly Leu Ser Val Ala Ser Trp Asp Thr Asp Val Asn Gly Glu Glu  
 65 70 75 80  
 His Lys Asn Asn Tyr Ala Val Arg Val Gly Asp Lys Leu Phe Leu Leu  
 85 90 95  
 His Asn Gly Glu Ala Ala Gln Ser Val Tyr Ser Ser Gly Glu Ser Trp  
 100 105 110  
 Ser Phe Val Asp His Lys Cys Gly Phe Asp Asn Ile His Leu Ala Leu  
 115 120 125  
 Tyr Arg Gln Gln Gly Ser Ser Phe Asn Pro Thr Asn Thr Gly Lys Val  
 130 135 140  
 Phe Leu Pro Thr Asn His Glu Gly Leu Pro Val Leu Val Val Glu Phe  
 145 150 155 160  
 Arg Asn Asn Lys Glu Pro Leu Val Phe Leu Gly Glu Tyr Ala Gln Gly  
 165 170 175  
 Arg Ile Ser Asn Lys Asp Ser Thr Ile Phe Gly Thr Ala Leu Val Phe  
 180 185 190  
 Trp Arg Ser Gly Ser Asp Tyr Ile Pro Leu Gly Leu Tyr Asp Ser Arg  
 195 200 205  
 Glu Glu Lys Leu Val Ser Leu Asp Leu Pro Ile Thr Arg Ala Val Ile

553

725 730 735  
 Lys Gly Pro Val Thr Asp Gln Gln Lys Gln Gln Gln Val Met Gly Asn  
 740 745 750  
 Met Met Ala Ile Leu Phe Thr Ala Met Phe Tyr Asn Phe Pro Ser Gly  
 755 760 765  
 Leu Asn Ile Tyr Trp Leu Ser Ser Met Ile Leu Gly Val Val Gln Gln  
 770 775 780  
 Trp Ile Thr Asn Lys Ile Leu Asp Ser Lys His Leu Lys Asn Glu Val  
 785 790 795 800  
 Val Leu Asn Asn Lys Lys His Arg  
 805

&lt;210&gt;328

&lt;211&gt;203

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;328

Phe Phe Met Asp Gly Val Phe Thr Tyr Asn Ile Leu Lys Arg Ser Phe  
 1 5 10 15  
 Lys Tyr Gly Thr Glu Ala Cys Arg Val Met Glu Ala Phe Phe Gly Phe  
 20 25 30  
 Leu Leu Trp Ala Ala Ile Phe Ser Trp Ile Tyr Lys Lys Lys Ile Ser  
 35 40 45  
 Lys Leu Thr Phe Leu Phe Leu Thr Asp Leu Cys Gly Ser Val Phe Gly  
 50 55 60  
 Ile Ala Ala Phe Phe Ile Arg Leu Gly Asn Phe Trp Asn Gln Glu Ile  
 65 70 75 80  
 Val Gly Thr Pro Thr Ser Leu Pro Trp Gly Val Val Phe Ser Asp Pro  
 85 90 95  
 Met Gln Gly Val Gln Gly Val Pro Val His Pro Val Gln Leu Tyr Glu  
 100 105 110  
 Gly Ile Ser Tyr Leu Val Val Ser Gly Ile Leu Tyr Phe Leu Ser Tyr  
 115 120 125  
 Lys Arg Tyr Leu His Leu Gly Lys Gly Tyr Val Thr Ser Ile Ala Cys  
 130 135 140  
 Ile Ser Val Ala Phe Ile Arg Phe Phe Ala Glu Tyr Val Lys Ser His  
 145 150 155 160  
 Gln Gly Lys Val Leu Ala Glu Asp Cys Leu Leu Thr Ile Gly Gln Ile  
 165 170 175  
 Leu Ser Ile Pro Leu Phe Leu Phe Gly Val Ala Leu Leu Ile Ile Cys  
 180 185 190  
 Ser Leu Lys Ala Arg Arg His Arg Ser His Ile  
 195 200

&lt;210&gt;329

&lt;211&gt;153

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;329

Cys Thr Met Ala Arg Asn Ile Lys Tyr Phe Leu Ile Leu Phe Pro Gly  
 1 5 10 15  
 Ile Leu Trp Ile Ser Ala Gly Met Lys Leu Leu Leu Lys Ala Thr Ala  
 20 25 30  
 Ile Ala Leu Asp Pro Leu Ser Ser Phe Phe Thr Tyr Cys Leu Leu Ser  
 35 40 45  
 Met Val Ser Trp Gly Leu Ala Ser Leu Lys His Arg Tyr Leu Leu Ser  
 50 55 60  
 Lys Thr Ile Arg Lys Gln Leu Ser Leu Ser Ser Glu Phe Phe Ser Gln  
 65 70 75 80  
 Lys Ile Thr Trp Ile Ala Tyr Ile Lys Gln Thr Phe Ile Ser Arg Arg  
 85 90 95  
 Phe Leu Ile Met Val Ile Met Ile Ala Phe Ser Leu Val Leu Arg Arg  
 100 105 110  
 Tyr Ile Ser Asn Pro Gln Ala Leu Phe Val Ile Arg Ala Thr Val Gly  
 115 120 125  
 Tyr Ala Leu Ile Lys Thr Ala Ile Ala Tyr Phe Ser Lys Leu Gln Asn

130 135 140  
 Ala Leu Met Glu Asn Pro Glu Gly Asn  
 145 150  
 <210>330  
 <211>122  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>330  
 Met Glu Ile Ile His Ile Gly Thr Asp Ile Ile Glu Ile Ser Arg Ile  
 1 5 10 15  
 Arg Glu Ala Ile Ala Thr His Gly Asn Arg Leu Leu Asn Arg Ile Phe  
 20 25 30  
 Thr Glu Ala Glu Gln Lys Tyr Cys Leu Glu Lys Thr Asp Pro Ile Pro  
 35 40 45  
 Ser Phe Ala Gly Arg Phe Ala Gly Lys Glu Ala Val Ala Lys Ala Leu  
 50 55 60  
 Gly Thr Gly Ile Gly Ser Val Val Ala Trp Lys Asp Ile Glu Val Phe  
 65 70 75 80  
 Lys Val Ser His Gly Pro Glu Val Leu Leu Pro Ser His Val Tyr Ala  
 85 90 95  
 Lys Ile Gly Ile Ser Lys Val Ile Leu Ser Ile Ser His Cys Lys Glu  
 100 105 110  
 Tyr Ala Thr Ala Thr Ala Ile Ala Leu Ala  
 115 120  
 <210>331  
 <211>311  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>331  
 Met Ile His Ser Arg Leu Ile Ile Ile Gly Ser Gly Pro Ser Gly Tyr  
 1 5 10 15  
 Thr Ala Ala Ile Tyr Ala Ser Arg Ala Leu Leu His Pro Leu Leu Phe  
 20 25 30  
 Glu Gly Phe Phe Ser Gly Ile Ser Gly Gly Gln Leu Met Thr Thr Thr  
 35 40 45  
 Glu Val Glu Asn Phe Pro Gly Phe Pro Glu Gly Ile Leu Gly Pro Lys  
 50 55 60  
 Leu Met Asn Asn Met Lys Glu Gln Ala Val Arg Phe Gly Thr Lys Thr  
 65 70 75 80  
 Leu Ala Gln Asp Ile Ile Ser Val Asp Phe Ser Val Arg Pro Phe Ile  
 85 90 95  
 Leu Lys Ser Lys Glu Glu Thr Tyr Ser Cys Asp Ala Cys Ile Ile Ala  
 100 105 110  
 Thr Gly Ala Ser Ala Lys Arg Leu Glu Ile Pro Gly Ala Gly Asn Asp  
 115 120 125  
 Glu Phe Trp Gln Lys Gly Val Thr Ala Cys Ala Val Cys Asp Gly Ala  
 130 135 140  
 Ser Pro Ile Phe Lys Asn Lys Asp Leu Tyr Val Ile Gly Gly Gly Asp  
 145 150 155 160  
 Ser Ala Leu Glu Glu Ala Leu Tyr Leu Thr Arg Tyr Gly Ser His Val  
 165 170 175  
 Tyr Val Val His Arg Arg Asp Lys Leu Arg Ala Ser Lys Ala Met Glu  
 180 185 190  
 Ala Arg Ala Gln Asn Asn Glu Lys Ile Thr Phe Leu Trp Asn Ser Glu  
 195 200 205  
 Ile Val Lys Ile Ser Gly Asp Ser Ile Val Arg Ser Val Asp Ile Lys  
 210 215 220  
 Asn Val Gln Thr Gln Glu Ile Thr Thr Arg Glu Ala Ala Gly Val Phe  
 225 230 235 240  
 Phe Ala Ile Gly His Lys Pro Asn Thr Asp Phe Leu Gly Gly Gln Leu  
 245 250 255  
 Thr Leu Asp Glu Ser Gly Tyr Ile Val Thr Glu Lys Gly Thr Ser Lys  
 260 265 270  
 Thr Ser Val Pro Gly Val Phe Ala Ala Gly Asp Val Gln Asp Lys Tyr

275 280 285  
 Tyr Arg Gln Ala Val Thr Ser Ala Gly Gly Gly Cys Ile Ala Ala Leu  
 290 295 300  
 Asp Ala Glu Arg Phe Leu Gly  
 305 310  
 <210>332  
 <211>580  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>332  
 Met Pro Lys Gln Ala Glu Tyr Thr Trp Gly Ser Lys Lys Ile Leu Asp  
 1 5 10 15  
 Asn Ile Glu Cys Leu Thr Glu Asp Val Ala Glu Phe Lys Asp Leu Leu  
 20 25 30  
 Tyr Thr Ala His Arg Ile Thr Ser Ser Glu Glu Glu Ser Asp Asn Glu  
 35 40 45  
 Ile Gln Pro Gly Ala Ile Leu Lys Gly Thr Val Val Asp Ile Asn Lys  
 50 55 60  
 Asp Phe Val Val Val Asp Val Gly Leu Lys Ser Glu Gly Val Ile Pro  
 65 70 75 80  
 Met Ser Glu Phe Ile Asp Ser Ser Glu Gly Leu Val Leu Gly Ala Glu  
 85 90 95  
 Val Glu Val Tyr Leu Asp Gln Ala Glu Asp Glu Glu Gly Lys Val Val  
 100 105 110  
 Leu Ser Arg Glu Lys Ala Thr Arg Gln Arg Gln Trp Glu Tyr Ile Leu  
 115 120 125  
 Ala His Cys Glu Glu Gly Ser Ile Val Lys Gly Gln Ile Thr Arg Lys  
 130 135 140  
 Val Lys Gly Gly Leu Ile Val Asp Ile Gly Met Glu Ala Phe Leu Pro  
 145 150 155 160  
 Gly Ser Gln Ile Asp Asn Lys Lys Ile Lys Asn Leu Asp Asp Tyr Val  
 165 170 175  
 Gly Lys Val Cys Glu Phe Lys Ile Leu Lys Ile Asn Val Glu Arg Arg  
 180 185 190  
 Asn Ile Val Val Ser Arg Arg Glu Leu Leu Glu Ala Glu Arg Ile Ser  
 195 200 205  
 Lys Lys Ala Glu Leu Ile Glu Gln Ile Ser Ile Gly Glu Tyr Arg Lys  
 210 215 220  
 Gly Val Val Lys Asn Ile Thr Asp Phe Gly Val Phe Leu Asp Leu Asp  
 225 230 235 240  
 Gly Ile Asp Gly Leu Leu His Ile Thr Asp Met Thr Trp Lys Arg Ile  
 245 250 255  
 Arg His Pro Ser Glu Met Val Glu Leu Asn Gln Glu Leu Glu Val Ile  
 260 265 270  
 Ile Leu Ser Val Asp Lys Glu Lys Gly Arg Val Ala Leu Gly Leu Lys  
 275 280 285  
 Gln Lys Glu His Asn Pro Trp Glu Asp Ile Glu Lys Lys Tyr Pro Pro  
 290 295 300  
 Gly Lys Arg Val Leu Gly Lys Ile Val Lys Leu Leu Pro Tyr Gly Ala  
 305 310 315 320  
 Phe Ile Glu Ile Glu Glu Gly Ile Glu Gly Leu Ile His Ile Ser Glu  
 325 330 335  
 Met Ser Trp Val Lys Asn Ile Val Asp Pro Ser Glu Val Val Asn Lys  
 340 345 350  
 Gly Asp Glu Val Glu Ala Ile Val Leu Ser Ile Gln Lys Asp Glu Gly  
 355 360 365  
 Lys Ile Ser Leu Gly Leu Lys Gln Thr Glu Arg Asn Pro Trp Asp Asn  
 370 375 380  
 Ile Glu Glu Lys Tyr Pro Ile Gly Leu His Val Asn Ala Glu Ile Lys  
 385 390 395 400  
 Asn Leu Thr Asn Tyr Gly Ala Phe Val Glu Leu Glu Pro Gly Ile Glu  
 405 410 415  
 Gly Leu Ile His Ile Ser Asp Met Ser Trp Ile Lys Lys Val Ser His  
 420 425 430

Pro Ser Glu Leu Phe Lys Lys Gly Asn Ser Val Glu Ala Val Ile Leu  
 435 440 445  
 Ser Val Asp Lys Glu Ser Lys Lys Ile Thr Leu Gly Val Lys Gln Leu  
 450 455 460  
 Ser Ser Asn Pro Trp Asn Glu Ile Glu Ala Met Phe Pro Ala Gly Thr  
 465 470 475 480  
 Val Ile Ser Gly Val Val Thr Lys Ile Thr Ala Phe Gly Ala Phe Val  
 485 490 495  
 Glu Leu Gln Asn Gly Ile Glu Gly Leu Ile His Val Ser Glu Leu Ser  
 500 505 510  
 Asp Lys Pro Phe Ala Lys Ile Glu Asp Ile Ile Ser Ile Gly Glu Asn  
 515 520 525  
 Val Ser Ala Lys Val Ile Lys Leu Asp Pro Asp His Lys Lys Val Ser  
 530 535 540  
 Leu Ser Val Lys Glu Tyr Leu Ala Asp Asn Ala Tyr Asp Gln Asp Ser  
 545 550 555 560  
 Arg Thr Glu Leu Asp Phe Lys Asp Ser Gln Gly Pro Lys Glu Arg Lys  
 565 570 575  
 Lys Lys Gly Lys  
 580

&lt;210&gt;333

&lt;211&gt;225

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;333

Met Asn Lys Asn Leu Val Ala Ile Phe Asp Tyr Met Glu Lys Glu Lys  
 1 5 10 15  
 Gly Ile Gln Arg Ser Thr Ile Ile Gly Ala Ile Glu Ser Ala Leu Lys  
 20 25 30  
 Ile Ala Ala Lys Lys Thr Leu Arg Asp Asp Ala Asn Ile Ser Val Asn  
 35 40 45  
 Ile Asn Ser Arg Thr Gly Asp Ile Glu Val Phe Cys Glu Lys Glu Ile  
 50 55 60  
 Val Glu Ile Cys Gln Asn Pro Ser Lys Glu Ile Pro Leu Asp Lys Ala  
 65 70 75 80  
 Arg Glu Tyr Asp Pro Asp Cys Gln Ile Gly Gln Tyr Met Asp Val Pro  
 85 90 95  
 Phe Val Ser Asp Asn Phe Gly Arg Ile Ala Ala His Ala Ala Arg Gln  
 100 105 110  
 Ile Ile Gly Gln Lys Leu Arg His Ala Glu Arg Asp Val Ile Tyr Glu  
 115 120 125  
 Glu Tyr Arg His Arg Val Asn Glu Thr Leu Ser Gly Val Val Lys Arg  
 130 135 140  
 Phe Ala Lys Gly Ser Asn Leu Ile Ile Asp Leu Gly Lys Val Glu Ala  
 145 150 155 160  
 Ile Leu Pro Thr Arg Phe Tyr Pro Lys Thr Glu Lys His Lys Ile Gly  
 165 170 175  
 Asp Lys Ile Tyr Ala Leu Leu Tyr Glu Val Gln Glu Ser Glu Asn Gly  
 180 185 190  
 Gly Ala Glu Val Ile Leu Ser Arg Ser His Ala Glu Phe Val Lys Gln  
 195 200 205  
 Leu Phe Ile Ser Arg Ser Pro Arg Thr Arg Arg Arg Phe Cys Gly Asp  
 210 215 220

Cys

225

&lt;210&gt;334

&lt;211&gt;174

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;334

Lys Ile Ser Phe Arg Glu Leu Asn Asp Glu Lys Ile Asp Ile Val Asn  
 1 5 10 15  
 Tyr Ser Pro Val Ser Thr Glu Leu Leu Gln Asn Leu Leu Tyr Pro Ile  
 20 25 30

Glu Ile Gln Lys Ile Ala Ile Leu Glu Asp Asp Lys Val Ile Ala Ile  
 35 40 45  
 Val Val Asn Asp Ala Asp Tyr Ala Thr Val Ile Gly Lys Arg Gly Ile  
 50 55 60  
 Asn Ala Arg Leu Ile Ser His Ile Leu Asp Tyr Glu Leu Glu Val Gln  
 65 70 75 80  
 Arg Met Ser Glu Tyr Asn Lys Leu Leu Glu Ile Gln Arg Leu Gln Leu  
 85 90 95  
 Ala Glu Phe Asp Ser Pro His Leu Asp Gln Pro Leu Glu Met Glu Gly  
 100 105 110  
 Ile Ser Lys Leu Val Ile Gln Asn Leu Glu His Ala Gly Tyr Asp Thr  
 115 120 125  
 Ile Arg Arg Val Leu Leu Ala Ser Ala Asn Asp Leu Ala Ser Val Pro  
 130 135 140  
 Gly Ile Ser Leu Glu Leu Ala Tyr Lys Ile Leu Glu Gln Val Ser Lys  
 145 150 155 160  
 Tyr Gly Glu Ser Lys Val Asp Glu Lys Pro Glu Ile Glu Asp  
 165 170

&lt;210&gt;335

&lt;211&gt;761

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;335

Leu Leu Ile Arg Ser Leu Ser Lys Ser Ala Asn Met Glu Lys Val Lys  
 1 5 10 15  
 Leu Thr Lys Asn Leu Lys Leu Lys Ile Lys Asn Ala Gln Leu Thr Lys  
 20 25 30  
 Ala Ala Gly Leu Asp Lys Leu Lys Gln Lys Leu Ala Gln Ala Gly Ser  
 35 40 45  
 Ser Glu Ala Lys Ser Ser Ser Glu Lys Pro Ser Ala Lys Glu Lys Ser  
 50 55 60  
 Val Lys Val Ala Leu Ala Ala Thr Ser Thr Pro Thr Ala Ser Ala Glu  
 65 70 75 80  
 Gln Ala Ser Pro Glu Ser Thr Ser Arg Arg Ile Arg Ala Lys Asn Arg  
 85 90 95  
 Ser Ser Phe Ser Ser Ser Glu Glu Glu Ser Ser Ala His Ile Pro Val  
 100 105 110  
 Asp Thr Ser Glu Pro Ala Pro Val Ser Ile Ala Asp Pro Glu Pro Glu  
 115 120 125  
 Leu Glu Val Val Asp Glu Val Cys Asp Glu Ser Pro Glu Val His Pro  
 130 135 140  
 Val Ala Glu Val Leu Pro Glu Gln Pro Val Leu Pro Glu Thr Pro Pro  
 145 150 155 160  
 Gln Glu Lys Glu Leu Glu Pro Lys Pro Val Lys Pro Ala Glu Pro Lys  
 165 170 175  
 Ser Val Val Met Ile Lys Ser Lys Phe Gly Pro Thr Gly Lys His Ile  
 180 185 190  
 Asn His Leu Leu Ala Lys Thr Phe Lys Ala Pro Ala Lys Glu Glu Lys  
 195 200 205  
 Val Val Ala Gly Ser Lys Ser Thr Lys Pro Val Ala Ser Asp Lys Thr  
 210 215 220  
 Gly Lys Pro Gly Thr Ser Glu Gly Gly Glu Gln Asn Asn Arg Glu Lys  
 225 230 235 240  
 Gln Phe Asn Pro Ala Asn Arg Ser Pro Ala Ser Gly Pro Lys Arg Asp  
 245 250 255  
 Ala Gly Lys Lys Asn Leu Thr Asp Phe Arg Asp Arg Ser Lys Lys Ser  
 260 265 270  
 Asp Glu Ser Leu Lys Ala Phe Thr Gly Arg Asp Arg Tyr Gly Leu Asn  
 275 280 285  
 Glu Gly Gly Glu Glu Asp Arg Trp Arg Lys Lys Arg Val Tyr Lys Pro  
 290 295 300  
 Lys Lys His Tyr Asp Glu Ala Ser Ile Gln Arg Pro Thr His Ile Lys  
 305 310 315 320  
 Ile Ser Leu Pro Ile Thr Val Lys Asp Leu Ala Thr Glu Met Lys Leu



325 330 335  
 Lys Ala Ser Glu Val Ile Gln Lys Leu Phe Ile His Gly Met Thr Tyr  
 340 345 350  
 Val Val Asn Asp Ile Leu Asp Ser Glu Thr Ala Val Gln Phe Ile Gly  
 355 360 365  
 Leu Glu Phe Gly Cys Thr Ile Asp Ile Asp Tyr Ser Glu Gln Asp Lys  
 370 375 380  
 Leu Cys Leu Ser Asn Asp Thr Val Arg Asp Glu Ile Gln Ser Thr Asp  
 385 390 395 400  
 Pro Ser Lys Leu Val Ile Arg Ser Pro Ile Val Ala Phe Met Gly His  
 405 410 415  
 Val Asp His Gly Lys Thr Thr Leu Ile Asp Ser Leu Arg Lys Ser Asn  
 420 425 430  
 Val Ala Ala Thr Glu Ala Gly Ala Ile Thr Gln His Met Gly Ala Phe  
 435 440 445  
 Cys Cys Ser Thr Pro Val Gly Asp Ile Thr Ile Leu Asp Thr Pro Gly  
 450 455 460  
 His Glu Ala Phe Ser Ala Met Arg Ala Arg Gly Ala Glu Val Cys Asp  
 465 470 475 480  
 Ile Val Val Leu Val Val Ala Gly Asp Glu Gly Ile Lys Xaa Gln Thr  
 485 490 495  
 Leu Glu Ala Ile Glu His Ala Lys Ala Ala Asp Ile Ala Ile Val Val  
 500 505 510  
 Ala Ile Asn Lys Cys Asp Lys Pro Asn Phe Asn Ser Glu Thr Ile Tyr  
 515 520 525  
 Arg Gln Leu Ser Glu Ile Asn Leu Leu Pro Glu Ala Trp Gly Gly Ser  
 530 535 540  
 Thr Val Thr Val Asn Thr Ser Ala Lys Thr Gly Glu Gly Leu Ser Glu  
 545 550 555 560  
 Leu Leu Glu Met Leu Ala Leu Gln Ala Glu Val Leu Glu Leu Lys Ala  
 565 570 575  
 Asp Pro Ser Ala Arg Ala Arg Gly Leu Val Ile Glu Ser Glu Leu His  
 580 585 590  
 Lys Gly Leu Gly Pro Val Ala Thr Val Leu Ile Gln Asn Gly Ser Leu  
 595 600 605  
 Lys Leu Gly Glu Ala Leu Val Phe Asn Asp Cys Tyr Gly Lys Val Lys  
 610 615 620  
 Thr Met His Asn Glu His Asn Glu Leu Met Lys Glu Ala Gly Pro Ser  
 625 630 635 640  
 Ile Pro Val Leu Ile Thr Gly Leu Ser Asp Ile Pro Lys Ala Gly Asp  
 645 650 655  
 Pro Phe Phe Val Val Lys Asn Glu Lys Thr Ala Arg Asp Ile Ile Glu  
 660 665 670  
 Ala Arg Ser Ala Gly Gln Gln Arg Phe Ala Leu Gln Gln Lys Lys Arg  
 675 680 685  
 Pro Asn Phe Asp Ser Met Leu Gln Asn Lys Lys Thr Leu Lys Leu Met  
 690 695 700  
 Ile Lys Ala Asp Val Gln Gly Ser Ile Glu Ala Leu Val Ser Ser Ile  
 705 710 715 720  
 Ser Lys Ile Lys Ser Glu Lys Val Asp Val Glu Ile Leu Thr Asn Ser  
 725 730 735  
 Val Gly Glu Ile Ser Glu Ser Asp Ile Arg Leu Leu Pro Pro Leu Lys  
 740 745 750  
 Gln Phe Ser Ser Val Ser Ile Gln Glu  
 755 760  
 <210>336  
 <211>170  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>336  
 Asn Phe Asn Lys Gln Cys Arg Arg Asn Phe Arg Ile Arg His Ser Phe  
 1 5 10 15  
 Thr Ala Ala Ser Lys Ala Val Leu Ile Gly Phe His Thr Gly Ile Glu  
 20 25 30

Ser His Ala Glu Pro Leu Ile Lys Ser Leu Gly Val Arg Val Glu Leu  
 35 40 45  
 Phe Thr Val Ile Tyr His Ala Ile Asp Ala Ile Lys Glu Ile Met Thr  
 50 55 60  
 Ser Leu Leu Asp Pro Ile Ala Glu Glu Lys Asp Glu Gly Ser Ala Glu  
 65 70 75 80  
 Ile Lys Glu Ile Phe Arg Ser Ser Gln Val Gly Ser Ile Tyr Gly Cys  
 85 90 95  
 Ile Val Thr Glu Gly Ile Met Thr Arg Asn His Lys Val Arg Val Leu  
 100 105 110  
 Arg Asn Lys Glu Ile Leu Trp Lys Gly Thr Leu Ser Ser Leu Lys Arg  
 115 120 125  
 Val Lys Glu Asp Val Lys Glu Val Arg Lys Gly Leu Glu Cys Gly Ile  
 130 135 140  
 Leu Leu Glu Gly Tyr Gln Gln Ala Gln Ile Gly Asp Val Leu Gln Cys  
 145 150 155 160  
 Tyr Glu Val Ile Tyr His Pro Gln Lys Leu  
 165 170

&lt;210&gt;337

&lt;211&gt;141

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;337

Val Met Ser Tyr Asn Val Met Lys Leu Ser Ile Ile His Lys Asn Tyr  
 1 5 10 15  
 Asn Leu Lys Tyr Cys Met Thr Glu Asn Arg Arg Ile Lys Arg Val Asn  
 20 25 30  
 Ala Leu Leu Gln Glu Ala Ile Ala Lys Val Ile Leu Lys Asp Val Lys  
 35 40 45  
 His Pro Lys Ile Ser Asn Leu Trp Ile Thr Val Thr Arg Val Ser Leu  
 50 55 60  
 Ser Lys Asp Leu His Ser Ala Arg Val Tyr Val Ser Val Met Pro His  
 65 70 75 80  
 Glu Asn Thr Lys Glu Glu Ala Leu Glu Ala Leu Lys Val Ser Ala Gly  
 85 90 95  
 Phe Ile Ala His Arg Ala Ser Lys Asn Val Val Leu Lys Tyr Phe Pro  
 100 105 110  
 Glu Leu His Phe Tyr Leu Asp Asp Ile Phe Ser Pro Gln Asp Tyr Ile  
 115 120 125  
 Glu Asn Leu Leu Trp Gln Ile Gln Glu Lys Glu Lys Ser  
 130 135 140

&lt;210&gt;338

&lt;211&gt;243

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;338

Leu Asn Thr Ile Lys Asp Met Thr Met Asp Leu Ala Val Glu Leu Lys  
 1 5 10 15  
 Glu Gly Ile Leu Leu Val Asp Lys Pro Gln Gly Arg Thr Ser Phe Ser  
 20 25 30  
 Leu Ile Arg Ala Leu Thr Lys Leu Ile Gly Val Lys Lys Ile Gly His  
 35 40 45  
 Ala Gly Thr Leu Asp Pro Phe Ala Thr Gly Val Met Val Met Leu Ile  
 50 55 60  
 Gly Arg Lys Phe Thr Arg Leu Ser Asp Ile Leu Leu Phe Glu Asp Lys  
 65 70 75 80  
 Glu Tyr Glu Ala Ile Ala His Leu Gly Thr Thr Thr Asp Ser Tyr Asp  
 85 90 95  
 Cys Asp Gly Lys Val Val Gly Arg Ser Lys Lys Ile Pro Ser Leu Glu  
 100 105 110  
 Glu Val Leu Ser Ala Ala Glu Tyr Phe Gln Gly Glu Ile Gln Gln Leu  
 115 120 125  
 Pro Pro Met Phe Ser Ala Lys Lys Val Gln Gly Lys Lys Leu Tyr Glu  
 130 135 140

Tyr Ala Arg Lys Gly Leu Ser Ile Glu Arg His His Ser Thr Val Gln  
 145 150 155 160  
 Val His Leu Gln Ile Thr Lys Tyr Glu Tyr Pro Leu Leu His Phe Val  
 165 170 175  
 Val Ser Cys Ser Lys Gly Thr Tyr Ile Arg Ser Ile Ala His Glu Leu  
 180 185 190  
 Gly Thr Met Leu Gly Cys Gly Ala Tyr Leu Glu Gln Leu Arg Arg Leu  
 195 200 205  
 Arg Ser Gly Arg Phe Ser Ile Asp Glu Cys Ile Asp Gly Asn Leu Leu  
 210 215 220  
 Asp His Pro Asp Phe Asp Ile Ser Pro Tyr Leu Arg Asp Ala His Gly  
 225 230 235 240  
 Asn Ser Leu

&lt;210&gt;339

&lt;211&gt;308

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;339

Met Pro Met Glu Ile Ala Tyr Ser Leu Thr Ser Ser Phe Ser Val Asp  
 1 5 10 15  
 Ser Val Thr Val Gly Phe Phe Asp Gly Cys His Leu Gly His Ser Asn  
 20 25 30  
 Leu Leu Ser Ile Leu Thr Ser Tyr Ser Gly Ser Ser Gly Val Ile Thr  
 35 40 45  
 Phe Asp Ser His Pro Gln Thr Val Leu Ser Leu Asn His Thr Lys Leu  
 50 55 60  
 Ile Asn Thr Lys Glu Glu Arg Leu Gln Leu Leu Gln Thr Phe Pro Ile  
 65 70 75 80  
 Asp Trp Leu Gly Val Leu Thr Phe Asp Leu Asn Phe Ala Asn Gln Ser  
 85 90 95  
 Ala Glu Glu Phe Leu Thr Leu Leu His Arg Asn Leu Lys Cys Lys Arg  
 100 105 110  
 Leu Ile Leu Gly Tyr Asp Ser Cys Ile Gly Lys Glu Gln Gln Ser Asn  
 115 120 125  
 Thr Glu Ala Leu Asp Thr Ile Gly Lys Pro Leu Gly Ile Glu Val Ile  
 130 135 140  
 Lys Ile Pro Pro Tyr Arg Met Asp Asn Ile Val Val Ser Ser Lys Ala  
 145 150 155 160  
 Ile Arg Gln Phe Leu Ser Ala Gly Asn Leu Glu Cys Ala His Arg Phe  
 165 170 175  
 Leu Gly His Pro Tyr Ala Ile Ser Gly Lys Ile Thr Glu Gly Ser Gly  
 180 185 190  
 Ile Gly Gly Ser Leu Gly Phe Ala Thr Ile Asn Leu Pro Arg Glu Glu  
 195 200 205  
 Ser Leu Ile Pro Leu Gly Val Tyr Ala Cys Glu Ile Arg Tyr Asp Ser  
 210 215 220  
 Thr Thr Cys Gln Gly Val Met Asn Leu Gly Thr Ala Pro Thr Phe Gly  
 225 230 235 240  
 Arg Glu Ser Leu Tyr Ala Glu Ala His Ile Phe Ser Phe Ala Glu Asn  
 245 250 255  
 Leu Tyr Gly Lys Glu Val Ser Ile Ile Pro Arg Lys Phe Leu Arg Glu  
 260 265 270  
 Glu Lys Lys Phe Gln Ser Lys Glu Thr Leu Ile Arg Ala Ile Glu Lys  
 275 280 285  
 Asp Ile Leu Asp Ala Gln Asp Trp Phe Ala Lys Gly Ser Phe Asn Tyr  
 290 295 300  
 Glu Gly Thr Ala  
 305

&lt;210&gt;340

&lt;211&gt;198

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;340

Tyr Asn Tyr Cys Ser Leu Arg Lys Gly Leu Pro Leu Arg Thr Leu Glu  
 1 5 10 15  
 Leu Thr Pro Glu Gln Ile Val Ala Leu Lys Pro Tyr Pro Phe Leu Thr  
 20 25 30  
 Met Lys Pro Met Phe Tyr Ile Ala Asn Val Asp Glu Ser Ser Leu Pro  
 35 40 45  
 Asp Met Asp Asn Asp Tyr Val Ala Ala Val Arg Glu Val Ala Ala Lys  
 50 55 60  
 Glu Asn Ser Lys Val Val Pro Ile Cys Val Arg Ile Glu Glu Glu Ile  
 65 70 75 80  
 Val Ser Leu Pro Ile Glu Glu Arg Leu Glu Phe Leu Met Ser Leu Gly  
 85 90 95  
 Leu Glu Lys Ser Gly Leu His Arg Leu Val Arg Ala Ala Tyr Asp Thr  
 100 105 110  
 Leu Gly Leu Ile Ser Tyr Phe Thr Thr Gly Pro Gln Glu Ser Arg Ala  
 115 120 125  
 Trp Thr Val Val Arg Gly Ser Ser Ala Trp Glu Ala Ala Gly Glu Ile  
 130 135 140  
 His Thr Asp Ile Gln Lys Gly Phe Ile Arg Ala Glu Val Ile Thr Phe  
 145 150 155 160  
 Glu Asp Met Ile Glu Cys Gln Gly Arg Ala Ala Ala Arg Glu Leu Gly  
 165 170 175  
 Lys Leu His Ile Glu Gly Arg Asp Tyr Ile Val Gln Asp Gly Asp Thr  
 180 185 190  
 Met Leu Phe Leu His Asn  
 195

&lt;210&gt;341

&lt;211&gt;180

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;341

Met Ser His Thr Glu Cys Gly Ile Val Gly Leu Pro Asn Val Gly Lys  
 1 5 10 15  
 Ser Gly Leu Phe Asn Ala Leu Thr Gly Ala Gln Val Ala Ser Cys Asn  
 20 25 30  
 Tyr Pro Phe Cys Thr Ile Asp Pro Asn Val Gly Ile Val Pro Val Ile  
 35 40 45  
 Asp Glu Arg Leu Glu Ala Leu Ala Lys Ile Ser Asn Ser Gln Lys Ile  
 50 55 60  
 Ile Tyr Ala Asp Met Lys Phe Val Asp Ile Ala Gly Leu Val Lys Gly  
 65 70 75 80  
 Ala Ser Asp Gly Ala Gly Leu Gly Asn Arg Phe Leu Ser His Ile Arg  
 85 90 95  
 Glu Thr His Ala Ile Ala His Val Val Arg Cys Phe Asp Asp Pro Asp  
 100 105 110  
 Val Thr His Val Ser Gly Lys Val Asn Pro Val Glu Asp Ile Glu Val  
 115 120 125  
 Ile Asn Leu Glu Leu Ile Phe Ser Asp Phe Ser Ser Ala Lys Asn Ile  
 130 135 140  
 His Ser Lys Leu Glu Lys Leu Ala Lys Gly Lys Arg Glu Val Gly Ala  
 145 150 155 160  
 Leu Leu Pro Leu Phe Asp Thr Ile Ile Ala His Leu Glu Lys Gly Cys  
 165 170 175  
 Arg Tyr Val Leu  
 180

&lt;210&gt;342

&lt;211&gt;360

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;342

Met Gly Glu Lys Thr Glu Lys Ala Thr Pro Lys Arg Leu Arg Asp Ala  
 1 5 10 15  
 Arg Lys Lys Gly Gln Val Ala Lys Ser Gln Asp Phe Pro Ser Ala Val  
 20 25 30

Thr Phe Ile Val Ser Met Phe Thr Ala Phe Ser Leu Ser Thr Phe Phe  
 35 40 45  
 Phe Lys His Leu Gly Gly Phe Leu Val Ser Met Leu Ser Gln Ala Pro  
 50 55 60  
 Thr Arg His Asp Pro Val Ile Thr Leu Phe Tyr Leu Lys Asn Cys Leu  
 65 70 75 80  
 Met Leu Ile Leu Thr Ala Ser Leu Pro Leu Leu Gly Ala Val Ala Val  
 85 90 95  
 Val Gly Val Ile Val Gly Phe Leu Ile Val Gly Pro Thr Phe Ser Thr  
 100 105 110  
 Glu Val Phe Lys Pro Asp Ile Lys Lys Phe Asn Pro Ile Glu Asn Ile  
 115 120 125  
 Lys Gln Lys Phe Lys Ile Lys Thr Leu Ile Glu Leu Ile Lys Ser Ile  
 130 135 140  
 Leu Lys Ile Phe Gly Ala Ala Leu Ile Leu Tyr Ile Thr Leu Lys Ser  
 145 150 155 160  
 Lys Val Ser Leu Ile Ile Glu Thr Ala Gly Val Ser Pro Ile Ile Thr  
 165 170 175  
 Ala Gln Ile Phe Lys Glu Ile Phe Tyr Lys Ala Val Thr Ser Ile Gly  
 180 185 190  
 Ile Phe Phe Leu Ile Val Ala Ile Leu Asp Leu Val Tyr Gln Arg His  
 195 200 205  
 Asn Phe Ala Lys Glu Leu Lys Met Glu Lys Phe Glu Val Lys Gln Glu  
 210 215 220  
 Phe Lys Asp Thr Glu Gly Asn Pro Glu Ile Lys Gly Arg Arg Arg Gln  
 225 230 235 240  
 Ile Ala Gln Glu Ile Ala Tyr Glu Asp Ser Ser Ser Gln Val Lys His  
 245 250 255  
 Ala Ser Thr Val Val Ser Asn Pro Lys Asp Ile Ala Val Ala Ile Gly  
 260 265 270  
 Tyr Met Pro Glu Lys Tyr Lys Ala Pro Trp Ile Ile Ala Met Gly Ile  
 275 280 285  
 Asn Leu Arg Ala Lys Arg Ile Leu Asp Glu Ala Glu Lys Tyr Gly Ile  
 290 295 300  
 Pro Ile Met Arg Asn Val Pro Leu Ala His Gln Leu Leu Asp Glu Gly  
 305 310 315 320  
 Lys Glu Leu Lys Phe Ile Pro Glu Ser Thr Tyr Glu Ala Ile Gly Glu  
 325 330 335  
 Ile Leu Leu Tyr Ile Thr Ser Leu Asn Ala Gln Asn Pro Asn Asn Lys  
 340 345 350  
 Asn Thr Asn Gln Pro Asp His Leu  
 355 360

&lt;210&gt;343

&lt;211&gt;606

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;343

Ser Val Cys Gly Ser Cys His Ser Gly Phe Gly Asp Phe Val Val Gly  
 1 5 10 15  
 Gly Asn Tyr Val Val Gly Phe Ile Ile Phe Leu Ile Ile Thr Ile Ile  
 20 25 30  
 Gln Phe Ile Val Val Thr Lys Gly Ala Glu Arg Val Ala Glu Val Ala  
 35 40 45  
 Ala Arg Phe Arg Leu Asp Ala Met Pro Gly Lys Gln Met Ala Ile Asp  
 50 55 60  
 Ala Asp Leu Arg Ala Gly Met Ile Asp Ala Thr Gln Ala Arg Asp Lys  
 65 70 75 80  
 Arg Ala Gln Ile Gln Lys Glu Ser Glu Leu Tyr Gly Ala Met Asp Gly  
 85 90 95  
 Ala Met Lys Phe Ile Lys Gly Asp Val Ile Ala Gly Ile Val Ile Ser  
 100 105 110  
 Leu Ile Asn Ile Val Gly Gly Leu Thr Ile Gly Val Ala Met His Gly  
 115 120 125  
 Met Asp Leu Ala Gln Ala Ala His Val Tyr Thr Leu Leu Ser Ile Gly

130 135 140  
 Asp Gly Leu Val Ser Gln Ile Pro Ser Leu Leu Ile Ala Leu Thr Ala  
 145 150 155 160  
 Gly Ile Val Thr Thr Arg Val Ser Ser Asp Lys Asn Thr Asn Leu Gly  
 165 170 175  
 Lys Glu Ile Ser Thr Gln Leu Val Lys Glu Pro Arg Ala Leu Leu Leu  
 180 185 190  
 Ala Gly Ala Ala Thr Leu Gly Val Gly Phe Phe Lys Gly Phe Pro Leu  
 195 200 205  
 Trp Ser Phe Ser Ile Leu Ala Leu Ile Phe Val Ala Leu Gly Ile Leu  
 210 215 220  
 Leu Leu Thr Lys Lys Ser Ala Ala Gly Lys Lys Gly Gly Gly Ser Gly  
 225 230 235 240  
 Ala Ser Thr Thr Val Gly Ala Ala Gly Asp Gly Ala Ala Thr Val Gly  
 245 250 255  
 Asp Asn Pro Asp Asp Tyr Ser Leu Thr Leu Pro Val Ile Leu Glu Leu  
 260 265 270  
 Gly Lys Asp Leu Ser Lys Leu Ile Gln His Lys Thr Lys Ser Gly Gln  
 275 280 285  
 Ser Phe Val Asp Asp Met Ile Pro Lys Met Arg Gln Ala Leu Tyr Gln  
 290 295 300  
 Asp Ile Gly Ile Arg Tyr Pro Gly Ile His Val Arg Thr Asp Ser Pro  
 305 310 315 320  
 Ser Leu Glu Gly Tyr Asp Tyr Met Ile Leu Leu Asn Glu Val Pro Tyr  
 325 330 335  
 Val Arg Gly Lys Ile Pro Pro His His Val Leu Thr Asn Glu Val Glu  
 340 345 350  
 Asp Asn Leu Ser Arg Tyr Asn Leu Pro Phe Ile Thr Tyr Lys Asn Ala  
 355 360 365  
 Ala Gly Leu Pro Ser Ala Trp Val Ser Glu Asp Ala Lys Ala Ile Leu  
 370 375 380  
 Glu Lys Ala Ala Ile Lys Tyr Trp Thr Pro Leu Glu Val Ile Ile Leu  
 385 390 395 400  
 His Leu Ser Tyr Phe Phe His Lys Ser Ser Gln Glu Phe Leu Gly Ile  
 405 410 415  
 Gln Glu Val Arg Ser Met Ile Glu Phe Met Glu Arg Ser Phe Pro Asp  
 420 425 430  
 Leu Val Lys Glu Val Thr Arg Leu Ile Pro Leu Gln Lys Leu Thr Glu  
 435 440 445  
 Ile Phe Lys Arg Leu Val Gln Glu Gln Ile Ser Ile Lys Asp Leu Arg  
 450 455 460  
 Thr Ile Leu Glu Ser Leu Ser Glu Trp Ala Gln Thr Glu Lys Asp Thr  
 465 470 475 480  
 Val Leu Leu Thr Glu Tyr Val Arg Ser Ser Leu Lys Leu Tyr Ile Ser  
 485 490 495  
 Phe Lys Phe Ser Gln Gly Gln Ser Ala Ile Ser Val Tyr Leu Leu Asp  
 500 505 510  
 Pro Glu Ile Glu Glu Met Ile Arg Gly Ala Ile Lys Gln Thr Ser Ala  
 515 520 525  
 Gly Ser Tyr Leu Ala Leu Asp Pro Asp Ser Val Asn Leu Ile Leu Lys  
 530 535 540  
 Ser Met Arg Asn Thr Ile Thr Pro Thr Pro Ala Gly Gly Gln Pro Pro  
 545 550 555 560  
 Val Leu Leu Thr Ala Ile Asp Val Arg Arg Tyr Val Arg Lys Leu Ile  
 565 570 575  
 Glu Thr Glu Phe Pro Asp Ile Ala Val Ile Ser Tyr Gln Glu Ile Leu  
 580 585 590  
 Pro Glu Ile Arg Ile Gln Pro Leu Gly Arg Ile Gln Ile Phe  
 595 600 605  
 <210>344  
 <211>215  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>344

Tyr Val Val Ala His Arg Arg His Met Ala Ala Ser Gly Gly Thr Gly  
 1 5 10 15  
 Gly Leu Gly Gly Thr Gln Gly Val Asn Leu Ala Ala Val Glu Ala Ala  
 20 25 30  
 Ala Ala Lys Ala Asp Ala Ala Glu Val Val Ala Ser Gln Glu Gly Ser  
 35 40 45  
 Glu Met Asn Met Ile Gln Gln Ser Gln Asp Leu Thr Asn Pro Ala Ala  
 50 55 60  
 Ala Thr Arg Thr Lys Lys Lys Glu Glu Lys Phe Gln Thr Leu Glu Ser  
 65 70 75 80  
 Arg Lys Lys Gly Glu Ala Gly Lys Ala Glu Lys Lys Ser Glu Ser Thr  
 85 90 95  
 Glu Glu Lys Pro Asp Thr Asp Leu Ala Asp Lys Tyr Ala Ser Gly Asn  
 100 105 110  
 Ser Glu Ile Ser Gly Gln Glu Leu Arg Gly Leu Arg Asp Ala Ile Gly  
 115 120 125  
 Asp Asp Ala Ser Pro Glu Asp Ile Leu Ala Leu Val Gln Glu Lys Ile  
 130 135 140  
 Lys Asp Pro Ala Leu Gln Ser Thr Ala Leu Asp Tyr Leu Val Gln Thr  
 145 150 155 160  
 Thr Pro Pro Ser Gln Gly Lys Leu Lys Glu Ala Leu Ile Gln Ala Arg  
 165 170 175  
 Asn Thr His Thr Glu Gln Phe Gly Arg Thr Ala Ile Gly Ala Lys Asn  
 180 185 190  
 Ile Leu Phe Ala Ser Gln Glu Tyr Ala Asp Gln Leu Asn Val Ser Pro  
 195 200 205  
 Ser Gly Phe Ala Leu Cys Thr  
 210 215

&lt;210&gt;345

&lt;211&gt;240

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;345

Ile Lys Arg Ser Ala Tyr Pro Ser Lys Glu Tyr Ser Tyr Gly Ala Ile  
 1 5 10 15  
 Arg Thr Asn Cys Tyr Trp Cys Glu Lys His Leu Ile Cys Leu Ser Arg  
 20 25 30  
 Ile Cys Arg Pro Thr Glu Cys Phe Ser Phe Arg Xaa Arg Ser Leu Tyr  
 35 40 45  
 Leu Glu Val Thr Gly Asp Thr His Thr Cys Asp Gln Leu Leu Ser Met  
 50 55 60  
 Leu Gln Asp Arg Tyr Thr Tyr Gln Asp Met Ala Ile Val Ser Ser Phe  
 65 70 75 80  
 Leu Met Lys Gly Met Ala Thr Glu Leu Lys Arg Gln Gly Pro Tyr Val  
 85 90 95  
 Pro Ser Ala Gln Leu Gln Val Leu Met Thr Glu Thr Arg Asn Leu Gln  
 100 105 110  
 Ala Val Leu Thr Ser Tyr Asp Tyr Phe Glu Ser Arg Val Pro Ile Leu  
 115 120 125  
 Leu Asp Ser Leu Lys Ala Glu Gly Ile Gln Thr Pro Ser Asp Leu Asn  
 130 135 140  
 Phe Val Lys Ile Ala Glu Ser Tyr His Lys Ile Ile Asn Asp Lys Phe  
 145 150 155 160  
 Pro Thr Ala Ser Lys Val Glu Arg Glu Val Arg Asn Leu Ile Gly Asp  
 165 170 175  
 Asp Val Asp Ser Val Thr Gly Val Leu Asn Leu Phe Phe Ser Ala Leu  
 180 185 190  
 Arg Gln Thr Ser Ser Arg Leu Phe Ser Ser Ala Asp Lys Arg Gln Gln  
 195 200 205  
 Leu Gly Ala Met Ile Ala Asn Ala Leu Asp Ala Val Asn Ile Asn Asn  
 210 215 220  
 Glu Asp Tyr Pro Lys Ala Ser Asp Phe Pro Lys Pro Tyr Pro Trp Ser  
 225 230 235 240

&lt;210&gt;346

&lt;211&gt;151

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;346

Lys Arg Ile Ala Met Gln Asn Gln Tyr Glu Gln Leu Leu Glu Ser Leu  
 1 5 10 15  
 Ala Pro Leu Leu Asn Thr Thr Leu Ala Pro Asp Lys Asn Asn Ser Cys  
 20 25 30  
 Leu Ile Arg Phe Ser Asp Thr His Val Pro Val Gln Ile Glu Glu Asp  
 35 40 45  
 Gly Asn Ser Gly Asp Leu Ala Val Ser Thr Leu Leu Gly Thr Leu Pro  
 50 55 60  
 Glu Asn Val Phe Arg Glu Arg Ile Phe Lys Ala Ala Leu Ser Val Asn  
 65 70 75 80  
 Gly Ser Phe Gln Ser Ser Ile Lys Gly Ile Leu Gly Tyr Gly Glu Val  
 85 90 95  
 Thr Gln Gln Leu Tyr Leu Ser Asp Ile Leu Ser Met Asn Tyr Leu Asn  
 100 105 110  
 Gly Glu Lys Leu Phe Glu Tyr Leu Lys Leu Phe Ser Leu His Ala Lys  
 115 120 125  
 Ile Trp Met Glu Ser Leu Arg Thr Gly Asn Leu Pro Asp Leu His Val  
 130 135 140  
 Leu Gly Ile Tyr Tyr Val Ala  
 145 150

&lt;210&gt;347

&lt;211&gt;526

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;347

Val Asn Val Leu Lys Tyr Thr Lys His Ser Pro Ser Ala His Ala Trp  
 1 5 10 15  
 Lys Leu Ile Gly Thr Ser Pro Lys His Gly Ile Tyr Leu Pro Leu Phe  
 20 25 30  
 Ser Ile His Thr Lys Asn Ser Cys Gly Ile Gly Glu Phe Leu Asp Leu  
 35 40 45  
 Ile Pro Leu Ile Ser Trp Cys Gln Lys Gln Gly Phe Ser Val Ile Gln  
 50 55 60  
 Leu Leu Pro Leu Asn Asp Thr Gly Glu Asp Thr Ser Pro Tyr Asn Ser  
 65 70 75 80  
 Ile Ser Ser Val Ala Leu Asn Pro Leu Phe Leu Ser Leu Ser Ser Leu  
 85 90 95  
 Pro Asn Ile Asp Thr Ile Pro Glu Val Ala Lys Lys Leu Gln Asp Met  
 100 105 110  
 His Glu Leu Cys Ser Thr Pro Ser Val Ser Tyr Thr Gln Val Lys Glu  
 115 120 125  
 Lys Lys Trp Ala Phe Leu Arg Glu Tyr Tyr Gln Lys Cys Cys Lys Ser  
 130 135 140  
 Ser Leu Glu Gly Asn Ser Asn Phe Ser Glu Phe Leu Glu Ser Glu Arg  
 145 150 155 160  
 Tyr Trp Leu Tyr Pro Tyr Gly Thr Phe Arg Ala Ile Lys His His Met  
 165 170 175  
 His Gly Glu Pro Ile Asn Asn Trp Pro Lys Ser Leu Thr Asp Gln Glu  
 180 185 190  
 Asn Phe Pro Asp Leu Thr Lys Lys Phe His Asp Glu Val Leu Phe Phe  
 195 200 205  
 Ser Tyr Leu Gln Phe Leu Cys Tyr Gln Gln Leu Cys Glu Val Lys Ala  
 210 215 220  
 Tyr Ala Asp Gln His His Val Leu Leu Lys Gly Asp Leu Pro Ile Leu  
 225 230 235 240  
 Ile Ser Lys Asp Ser Cys Asp Val Trp Tyr Phe Arg Asp Tyr Phe Ser  
 245 250 255  
 Ser Ser Arg Ser Val Gly Ala Pro Pro Asp Leu Tyr Asn Ser Glu Gly  
 260 265 270  
 Gln Asn Trp His Leu Pro Ile Tyr Asn Phe Ser Gln Leu Ala Lys Asp



275 280 285  
 Asp Tyr Ile Trp Trp Lys Glu Arg Leu Arg Tyr Ala Gln Asn Phe Tyr  
 290 295 300  
 Ser Val Tyr Arg Leu Asp His Ile Ile Gly Phe Phe Arg Leu Trp Ile  
 305 310 315 320  
 Trp Asp Ser Ser Gly Arg Gly Arg Phe Ile Pro Asp Asn Pro Lys Asp  
 325 330 335  
 Tyr Ile Lys Gln Gly Thr Glu Ile Leu Ser Thr Met Leu Gly Ala Ser  
 340 345 350  
 Ser Met Leu Pro Ile Gly Glu Asp Leu Gly Ile Ile Pro Gln Asp Val  
 355 360 365  
 Lys Thr Thr Leu Thr His Leu Gly Ile Cys Gly Thr Arg Ile Pro Arg  
 370 375 380  
 Trp Glu Arg Asn Trp Glu Ser Asp Ser Ala Phe Ile Pro Leu Lys Asp  
 385 390 395 400  
 Tyr Asn Pro Leu Ser Val Thr Thr Leu Ser Thr His Asp Ser Asp Thr  
 405 410 415  
 Phe Ala Gln Trp Trp Leu Asn Ser Pro Lys Glu Ala Lys Gln Phe Ala  
 420 425 430  
 Lys Phe Leu His Leu Pro Phe Gln Lys Thr Leu Thr Thr Glu Thr Gln  
 435 440 445  
 Ile Asp Ile Leu Lys Leu Ser His Glu Ser Ala Ser Ile Phe His Ile  
 450 455 460  
 Asn Leu Phe Asn Asp Tyr Leu Ala Leu Cys Pro Asp Leu Val Ser Lys  
 465 470 475 480  
 Asn Leu Gln Arg Glu Arg Ile Asn Thr Pro Gly Thr Ile Ser Lys Lys  
 485 490 495  
 Asn Trp Ser Tyr Arg Val Arg Pro Ser Leu Glu Glu Leu Ala Ile His  
 500 505 510  
 Lys Lys Phe Asn Gly Tyr Ile Glu Lys Ile Leu Thr Gly Leu  
 515 520 525

&lt;210&gt;348

&lt;211&gt;89

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;348

Met Ser Arg Lys Cys Pro Leu Thr Gly Lys Arg Pro Arg Arg Gly Tyr  
 1 5 10 15  
 Ser Tyr Thr Leu Arg Gly Ile Ala Lys Lys Lys Gly Ile Gly Leu  
 20 25 30  
 Lys Val Thr Gly Lys Thr Lys Arg Arg Phe Phe Pro Asn Met Leu Thr  
 35 40 45  
 Lys Arg Leu Trp Ser Thr Glu Glu Asn Arg Phe Leu Lys Leu Lys Ile  
 50 55 60  
 Ser Ala Ser Ala Leu Arg His Ile Asp Lys Leu Gly Leu Glu Lys Val  
 65 70 75 80  
 Leu Glu Arg Ala Lys Ser Lys Asn Phe  
 85

&lt;210&gt;349

&lt;211&gt;584

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;349

Met Ser Phe Leu Arg Arg His Ile Ser Leu Phe Arg Ser Gln Lys Gln  
 1 5 10 15  
 Leu Ile Asp Val Phe Ala Pro Val Ser Pro Asn Leu Glu Leu Ala Glu  
 20 25 30  
 Ile His Arg Arg Val Ile Glu Asp Gln Gly Pro Ala Leu Leu Phe His  
 35 40 45  
 Asn Val Ile Gly Ser Ser Phe Pro Val Leu Thr Asn Leu Phe Gly Thr  
 50 55 60  
 Lys His Arg Val Asp Gln Leu Phe Ser Gln Ala Pro Asp Asn Leu Ile  
 65 70 75 80  
 Ala Arg Val Ala His Leu Ile Ser Ser Thr Pro Lys Leu Ser Ser Leu

568

&lt;211&gt;354

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;350

Lys Met Asn Lys Arg Gln Lys Asp Lys Leu Lys Ile Cys Val Ile Ile  
 1 5 10 15  
 Ser Thr Leu Ile Leu Val Gly Ile Phe Ala Arg Ala Pro Arg Gly Asp  
 20 25 30  
 Thr Phe Lys Thr Phe Leu Lys Ser Glu Glu Ala Ile Ile Tyr Ser Asn  
 35 40 45  
 Gln Cys Asn Glu Asp Met Arg Lys Ile Leu Cys Asp Ala Ile Glu His  
 50 55 60  
 Ala Asp Glu Glu Ile Phe Leu Arg Ile Tyr Asn Leu Ser Glu Pro Lys  
 65 70 75 80  
 Ile Gln Gln Ser Leu Thr Arg Gln Ala Gln Ala Lys Asn Lys Val Thr  
 85 90 95  
 Ile Tyr Tyr Gln Lys Phe Lys Ile Pro Gln Ile Leu Lys Gln Ala Ser  
 100 105 110  
 Asn Val Thr Leu Val Glu Gln Pro Pro Ala Gly Arg Lys Leu Met His  
 115 120 125  
 Gln Lys Ala Leu Ser Ile Asp Lys Lys Asp Ala Trp Leu Gly Ser Ala  
 130 135 140  
 Asn Tyr Thr Asn Leu Ser Leu Arg Leu Asp Asn Asn Leu Ile Leu Gly  
 145 150 155 160  
 Met His Ser Ser Glu Leu Cys Asp Leu Ile Ile Thr Asn Thr Ser Gly  
 165 170 175  
 Asp Phe Ser Ile Lys Asp Gln Thr Gly Lys Tyr Phe Val Leu Pro Gln  
 180 185 190  
 Asp Arg Lys Ile Ala Ile Gln Ala Val Leu Glu Lys Ile Gln Thr Ala  
 195 200 205  
 Gln Lys Thr Ile Gln Val Ala Met Phe Ala Leu Thr His Ser Glu Ile  
 210 215 220  
 Ile Gln Ala Leu His Gln Ala Lys Gln Arg Gly Ile His Val Asp Ile  
 225 230 235 240  
 Ile Ile Asp Arg Ser His Ser Lys Leu Thr Phe Lys Gln Leu Arg Gln  
 245 250 255  
 Leu Asn Ile Asn Lys Asp Phe Val Ser Ile Asn Thr Ala Pro Cys Thr  
 260 265 270  
 Leu His His Lys Phe Ala Val Ile Asp Asn Lys Thr Leu Leu Ala Gly  
 275 280 285  
 Ser Ile Asn Trp Ser Lys Gly Arg Phe Ser Leu Asn Asp Glu Ser Leu  
 290 295 300  
 Ile Ile Leu Glu Asn Leu Thr Lys Gln Gln Asn Gln Lys Leu Arg Met  
 305 310 315 320  
 Ile Trp Lys Asp Leu Ala Lys His Ser Glu His Pro Thr Val Asp Asp  
 325 330 335  
 Glu Glu Lys Glu Ile Ile Glu Lys Ser Leu Pro Val Glu Glu Gln Glu  
 340 345 350  
 Ala Ala

&lt;210&gt;351

&lt;211&gt;243

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;351

Phe Ile Ser Ile Glu Met Leu Leu Leu Ser Arg Gln Leu Phe Ser Val  
 1 5 10 15  
 Leu Pro Ser Arg Phe Gln Asp Leu His Val Tyr Arg Phe Lys Glu Ser  
 20 25 30  
 Leu Lys Leu Leu Gln Phe Met Thr Met Val Gly Gly Glu Ile Val Val  
 35 40 45  
 Val Leu Ala Glu Ile Lys Glu Glu Asp Leu Arg Ala Arg Lys Leu Pro  
 50 55 60  
 Val Arg Lys Arg Arg Glu Lys Asn Tyr Leu Arg Ile Phe Arg Val Leu

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      65              70              75              80
Ser Arg Phe Asp Val Met Arg Ile Ile Arg Phe Asp Pro Tyr Gly Ala
      85              90              95
Leu Ser Ala Gln Ser Ile Ala Lys Asp Ser Arg Gln Asn Ser Pro Leu
      100             105             110
Val Glu Lys Ile Ser Glu Glu Ile Ala Thr Asn Glu Ala Ile Arg Leu
      115             120             125
Ala Leu Leu Ala Ile Gly Asp Arg Glu Gln Glu Glu Lys Lys Gln Arg
      130             135             140
His Arg Tyr Lys Leu Leu Gly Gln Lys Gln Ala Lys Val Leu Leu Ser
      145             150             155
Gln Leu Arg His Val His Leu Asp Phe Lys Lys Leu Tyr Cys Asp Ser
      165             170             175
Lys Lys Lys Glu Asp Gln Glu Lys Asp Glu Lys Asn Lys Gln Lys Arg
      180             185             190
Ser Ile Lys Val Thr Lys Lys Lys Lys Gly Ile Ser Leu Gly Ala Ala
      195             200             205
Ala Ser Gln Ala Ile Ala Ala Ala Ala Glu Ala Trp Val Ile Ala Arg
      210             215             220
Asn Lys Gly Val Leu Glu Thr Ala Ser Thr Leu Phe Tyr Gln Lys Asp
      225             230             235             240
Glu Glu Ala

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&lt;210&gt;352

&lt;211&gt;584

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;352

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Ile Gln Arg Ile Ile Met Ala Val Ser Gly Gly Gly Gly Val Gln Pro
  1              5              10              15
Ser Ser Asp Pro Gly Lys Trp Asn Pro Ala Leu Gln Gly Glu Gln Ala
      20             25             30
Glu Gly Pro Ser Pro Leu Lys Glu Ser Ile Phe Ser Glu Thr Lys Gln
      35             40             45
Ala Ser Ser Ala Ala Lys Gln Glu Ser Leu Val Arg Ser Gly Ser Thr
      50             55             60
Gly Met Tyr Ala Thr Glu Ser Gln Ile Asn Lys Ala Lys Tyr Arg Lys
      65             70             75             80
Ala Gln Asp Arg Ser Ser Thr Ser Pro Lys Ser Lys Leu Lys Gly Thr
      85             90             95
Phe Ser Lys Met Arg Ala Ser Val Gln Gly Phe Met Ser Gly Phe Gly
      100            105            110
Ser Arg Ala Ser Arg Val Ser Ala Lys Arg Ala Ser Asp Ser Gly Glu
      115            120            125
Gly Thr Ser Leu Leu Pro Thr Glu Met Asp Val Ala Leu Lys Lys Gly
      130            135            140
Asn Arg Ile Ser Pro Glu Met Gln Gly Phe Phe Leu Asp Ala Ser Gly
      145            150            155            160
Met Gly Gly Ser Ser Ser Asp Ile Ser Gln Leu Ser Leu Glu Ala Leu
      165            170            175
Lys Ser Ser Ala Phe Ser Gly Ala Arg Ser Leu Ser Leu Ser Ser Ser
      180            185            190
Glu Ser Ser Ser Val Ala Ser Phe Gly Ser Phe Gln Lys Ala Ile Glu
      195            200            205
Pro Met Ser Glu Glu Lys Val Asn Ala Trp Thr Val Ala Arg Leu Gly
      210            215            220
Gly Glu Met Val Ser Ser Leu Leu Asp Pro Asn Val Glu Thr Ser Ser
      225            230            235            240
Leu Val Arg Arg Ala Met Ala Thr Gly Asn Glu Gly Met Ile Asp Leu
      245            250            255
Ser Asp Leu Gly Gln Glu Glu Xaa Ser Thr Ala Met Thr Ser Pro Arg
      260            265            270
Ala Val Glu Gly Lys Val Lys Val Ser Ser Ser Asp Ser Pro Glu Ala
      275            280            285

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Asn Pro Thr Gly Ile Pro Asn Ser Asn Thr Leu Glu Arg Ala Glu Lys  
 290 295 300  
 Glu Ala Glu Lys Gln Glu Ser Arg Glu Gln Leu Ser Glu Asp Gln Met  
 305 310 315 320  
 Met Leu Ala Arg Ala Met Ala Gly Leu Leu Thr Gly Ala Ala Pro Gln  
 325 330 335  
 Glu Val Leu Ser Asn Ser Val Trp Ser Gly Pro Ser Thr Val Phe Pro  
 340 345 350  
 Pro Pro Lys Phe Ser Gly Thr Leu Pro Thr Gln Arg Ser Gly Asp Lys  
 355 360 365  
 Ser Lys His Lys Ser Pro Gly Ile Glu Lys Ser Thr Asn His Thr Asn  
 370 375 380  
 Phe Ser Pro Leu Arg Glu Gly Thr Val Lys Ser Ala Glu Val Lys Ser  
 385 390 395 400  
 Leu Pro His Pro Glu Ser Met Tyr Arg Phe Pro Lys Asp Ser Ile Val  
 405 410 415  
 Ser Arg Glu Glu Pro Glu Ala Val Val Lys Glu Ser Thr Ala Phe Lys  
 420 425 430  
 Asn Pro Glu Asn Ser Ser Gln Asn Phe Leu Pro Ile Ala Val Glu Ser  
 435 440 445  
 Val Phe Pro Lys Glu Ser Gly Thr Gly Gly Ala Leu Gly Ser Asp Ala  
 450 455 460  
 Val Ser Ser Ser Tyr His Phe Leu Ala Gln Arg Gly Val Ser Leu Leu  
 465 470 475 480  
 Ala Pro Leu Pro Arg Ala Thr Asp Asp Tyr Lys Glu Lys Leu Glu Ala  
 485 490 495  
 His Lys Gly Pro Gly Gly Pro Pro Asp Pro Leu Ile Tyr Gln Tyr Arg  
 500 505 510  
 Asn Val Ala Val Glu Pro Pro Ile Val Leu Arg Ser Pro Gln Pro Phe  
 515 520 525  
 Ser Gly Ser Ser Arg Leu Ser Val Gln Gly Lys Pro Glu Ala Ala Ser  
 530 535 540  
 Val His Asp Asp Gly Gly Gly Gly Asn Ser Gly Gly Phe Ser Gly Asp  
 545 550 555 560  
 Gln Arg Arg Gly Ser Ser Gly Gln Lys Ala Ser Arg Gln Glu Lys Lys  
 565 570 575  
 Gly Lys Lys Leu Ser Thr Asp Ile  
 580

&lt;210&gt;353

&lt;211&gt;271

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;353

Glu Ile Gly Met Leu Leu Arg Gly Ile Pro Ala Ala Glu Lys Ile Leu  
 1 5 10 15  
 Gln Arg Leu Lys Glu Glu Ile Ser Gln Ser Pro Thr Ser Pro Gly Leu  
 20 25 30  
 Ala Val Val Leu Ile Gly Asn Asp Pro Ala Ser Glu Val Tyr Val Gly  
 35 40 45  
 Met Lys Val Lys Lys Ala Thr Glu Ile Gly Ile Ile Ser Lys Ala His  
 50 55 60  
 Lys Leu Pro Ser Asp Ser Thr Leu Ser Ser Val Leu Lys Leu Ile Glu  
 65 70 75 80  
 Arg Leu Asn Gln Asp Pro Ser Ile His Gly Ile Leu Val Gln Leu Pro  
 85 90 95  
 Leu Pro Lys His Leu Asp Ser Glu Val Ile Leu Gln Ala Ile Ser Pro  
 100 105 110  
 Asp Lys Asp Val Asp Gly Leu His Pro Val Asn Met Gly Lys Leu Leu  
 115 120 125  
 Leu Gly Asn Phe Asp Gly Leu Leu Pro Cys Thr Pro Ala Gly Ile Ile  
 130 135 140  
 Glu Leu Leu Asn Tyr Tyr Glu Ile Pro Leu Arg Gly Arg His Ala Ala  
 145 150 155 160  
 Ile Val Gly Arg Ser Asn Ile Val Gly Lys Pro Leu Ala Ala Leu Met

Leu Leu Tyr Trp Phe Leu Ser Pro Ile Met Gly Glu Asp Leu Met Ala  
1 5 10 15  
Gln Lys Glu Ile Val Ser Asn Arg Lys Ala Leu Arg Asn Tyr Glu Val

20 25 30  
 Ile Glu Thr Leu Glu Ala Gly Ile Val Leu Thr Gly Thr Glu Ile Lys  
 35 40 45  
 Ser Leu Arg Asp His Gly Gly Asn Leu Gly Asp Ala Tyr Val Ile Val  
 50 55 60  
 Ser Lys Gly Glu Gly Trp Leu Leu Asn Ala Ser Ile Ala Pro Tyr Arg  
 65 70 75 80  
 Phe Gly Asn Ile Tyr Asn His Glu Glu Arg Arg Lys Arg Lys Leu Leu  
 85 90 95  
 Leu His Arg Tyr Glu Leu Arg Lys Leu Glu Gly Lys Ile Ala Gln Lys  
 100 105 110  
 Gly Met Thr Leu Ile Pro Leu Gly Met Phe Leu Ser Arg Gly Tyr Val  
 115 120 125  
 Lys Val Arg Leu Gly Cys Cys Arg Gly Lys Lys Ala Tyr Asp Lys Arg  
 130 135 140  
 Arg Thr Ile Ile Glu Arg Glu Lys Glu Arg Glu Val Ala Ala Ala Met  
 145 150 155 160  
 Lys Arg Arg His His  
 165

&lt;210&gt;356

&lt;211&gt;135

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;356

Glu Asn Met Lys Phe Val Val Ser Arg Asn Glu Leu Gly Asn Leu Ile  
 1 5 10 15  
 Lys Lys Ile Gln Ser Val Val Pro Gln Asn Thr Pro Ile Pro Val Leu  
 20 25 30  
 Thr His Val Leu Ile Glu Thr Tyr Asn Asp Glu Leu Val Phe Thr Ala  
 35 40 45  
 Thr Asp Leu Thr Val Ser Thr Arg Cys Val Thr Lys Ala Lys Val Tyr  
 50 55 60  
 Glu Lys Gly Ala Ile Ser Ile Pro Ser Lys Arg Phe Phe Gln Leu Val  
 65 70 75 80  
 Lys Glu Leu Thr Glu Ala Asn Leu Glu Ile Ser Ser Ser Ala Gly Glu  
 85 90 95  
 Met Ala Gln Ile Thr Ser Gly Ser Ser Tyr Phe Ala Tyr Ser Ala Trp  
 100 105 110  
 Lys Lys Lys Thr Ser Pro Cys Ser Leu Ile Tyr Lys Met Leu Cys Val  
 115 120 125  
 Phe Pro Cys Leu Gln Ser Ser  
 130 135

&lt;210&gt;357

&lt;211&gt;303

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;357

Glu Arg Arg Tyr Phe His Ser Leu Gln Glu Ile Phe Ser Ile Ser Lys  
 1 5 10 15  
 Arg Ile Asn Arg Gly Lys Phe Arg Asn Phe Leu Phe Ser Arg Gly Asn  
 20 25 30  
 Gly Thr Asn His Leu Gly Ile Phe Ile Phe Arg Leu Leu Ser Met Glu  
 35 40 45  
 Lys Glu Asp Phe Pro Met Leu Pro Asp Ile Gln Asn Ala Leu Arg Phe  
 50 55 60  
 Ser Leu Pro Ala Glu Gln Leu Lys Thr Met Leu Gln Arg Thr Ser Phe  
 65 70 75 80  
 Ala Val Ser Arg Glu Glu Ser Arg Tyr Val Leu Thr Gly Val Leu Leu  
 85 90 95  
 Ala Ile Ala Asn Gly Val Ala Thr Ile Val Gly Thr Asp Gly Lys Arg  
 100 105 110  
 Leu Ala Lys Ile Asp Ala Glu Val Thr Leu Asp Lys Ser Phe Ser Gly  
 115 120 125  
 Glu Tyr Ile Ile Pro Ile Lys Ala Val Glu Glu Ile Ile Lys Met Cys

130 135 140  
 Ser Asp Glu Gly Glu Ala Thr Ile Phe Leu Asp Gln Asp Lys Ile Ala  
 145 150 155 160  
 Val Glu Cys Asp Asn Thr Leu Leu Ile Thr Lys Leu Leu Ser Gly Glu  
 165 170 175  
 Phe Pro Asp Phe Ser Pro Val Ile Ser Thr Glu Ser Asn Val Lys Leu  
 180 185 190  
 Asp Leu His Arg Glu Glu Leu Ile Thr Leu Leu Lys Gln Val Ala Leu  
 195 200 205  
 Phe Thr Asn Glu Ser Ser His Ser Val Lys Phe Ser Phe Leu Pro Gly  
 210 215 220  
 Glu Leu Thr Leu Thr Ala Asn Cys Thr Lys Val Gly Glu Gly Lys Val  
 225 230 235 240  
 Ser Met Ala Val Asn Tyr Ser Gly Glu Leu Leu Glu Ile Ala Phe Asn  
 245 250 255  
 Pro Phe Phe Phe Leu Asp Ile Leu Lys His Ser Lys Asp Glu Leu Val  
 260 265 270  
 Ser Leu Gly Ile Ser Asp Ser Tyr Asn Pro Gly Ile Ile Thr Asp Ser  
 275 280 285  
 Ala Ser Gly Leu Phe Val Ile Met Pro Met Arg Leu His Asp Asp  
 290 295 300

&lt;210&gt;358

&lt;211&gt;218

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;358

Pro Leu Tyr Pro Leu Leu Ile Val Leu Ser Ser Arg Ser Ser Ala Glu  
 1 5 10 15  
 Lys Cys Ser Leu Lys Lys Gln Ala Asn Leu Asn Arg Gly Leu Trp Asp  
 20 25 30  
 Glu Gln Leu Val Lys His Gly Thr Tyr Leu Ser Ile Gln Arg Phe Leu  
 35 40 45  
 Cys Ser Gln Lys Leu Ser Asp Leu Ser Lys Glu Leu Trp Ser Asn Asn  
 50 55 60  
 Leu Lys Glu Gln Leu Ala Leu Lys Phe Lys Ser Ser Leu Ile Lys Asn  
 65 70 75 80  
 Ser Asp Ile Ser Glu Thr Ala Val Ala Glu Glu Phe His Lys Gln Leu  
 85 90 95  
 Ser Ile Ser Leu Pro Arg Asp Leu Glu Trp Gly Ser Thr Ser Val Gly  
 100 105 110  
 Pro His Arg Glu Asp Phe Leu Leu Thr Met Asn Gln Met Pro Val Ser  
 115 120 125  
 Gln Phe Ser Ser Glu Gly Gln Lys His Ser Leu Leu Ala Ile Leu Arg  
 130 135 140  
 Leu Ala Glu Cys Leu Tyr Leu Lys Gln Ser His His Val Ser Pro Leu  
 145 150 155 160  
 Val Cys Leu Asp Asp Ile His Ala Gly Leu Asp Asn Glu Arg Val Gly  
 165 170 175  
 Gln Leu Leu Asp Pro Ala Pro Thr Leu Gly Gln Thr Leu Ile Thr Ser  
 180 185 190  
 Thr His Met His Gly Glu Leu Pro Lys Thr Ser Leu Val Leu Ser Ile  
 195 200 205  
 Glu Asn Ala Gln Val Ser Glu Gln Ile Ile  
 210 215

&lt;210&gt;359

&lt;211&gt;127

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;359

His Met Lys Lys Phe Leu Leu Thr Ile Leu Phe Leu Ala Val Gly Asn  
 1 5 10 15  
 Pro Leu Phe Ser Glu Thr Ser Val Ile Gln Thr Leu Pro Ser Gly Ile  
 20 25 30  
 Gly Gly Leu Lys Glu Thr Ser Lys Gln Lys Glu Ser Val Val Cys Val



35 40 45  
 His Ala Phe Leu Arg Ser Tyr Thr Ser Leu Lys Pro Ile Ala Arg Val  
 50 55 60  
 Leu Glu Lys Glu His Tyr Asp Val Phe Ile Trp Asn Tyr Glu Thr Arg  
 65 70 75 80  
 Lys Phe Thr Leu Glu Lys His Ala Glu His Leu Asn Arg Leu Leu Lys  
 85 90 95  
 Lys Ile Ala Glu Leu Lys Pro Gly Val Pro Ile Asn Phe Val Thr His  
 100 105 110  
 Ser Ile Gly Glu Val Ile Val Arg Ala Leu Ala Glu Lys Asn Ser  
 115 120 125  
 <210>360  
 <211>244  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>360  
 Leu Ile Leu Leu Glu Glu Ser Leu Phe Val Arg Leu Leu Lys Lys Ile  
 1 5 10 15  
 Ala Glu Leu Lys Pro Gly Val Pro Ile Asn Phe Val Thr His Ser Ile  
 20 25 30  
 Gly Gly Val Ile Val Arg Val Ala Leu Ala His Pro Asp Cys Pro Glu  
 35 40 45  
 Glu Ala Lys Lys Gly Lys Ala Ile Leu Met Ala Pro Asn Ala Gly  
 50 55 60  
 Ser Thr Leu Ala Arg Arg Tyr Arg Cys Val Lys Phe Val Gln Phe Val  
 65 70 75 80  
 Phe Gly Gly Lys Leu Gly Arg Gln Leu Leu Thr Tyr Cys Pro Thr Lys  
 85 90 95  
 Met Leu Asn Val Gly Lys Leu Pro Ser Ser Leu Asp Val Leu Ile Leu  
 100 105 110  
 Ser Gly Asn Arg His Ser Lys Phe Leu Pro Phe Arg Leu Pro Tyr Glu  
 115 120 125  
 Asn Asp Gly Lys Val Cys Thr Ile Glu Thr Lys Leu Asp Thr Pro His  
 130 135 140  
 Lys Ala Tyr Val Ile His Thr Ser His Thr Tyr Ile Ile Thr Asn Arg  
 145 150 155 160  
 Lys Ser Leu Tyr Leu Met Lys Glu Phe Leu Lys Glu Gly Asn Thr Thr  
 165 170 175  
 Pro Ile Ile Glu His Val Pro Glu Ala Ala Leu Glu Gln Thr Val Met  
 180 185 190  
 Glu Asp Lys Gln Lys Asn Ser Arg Leu Lys Pro Tyr Pro Asn Gln Asp  
 195 200 205  
 Ile Tyr Val Ile His Cys Phe Gly Ser Arg Pro Tyr Asn Leu Tyr Gly  
 210 215 220  
 Phe Pro Lys Lys Trp Ser Leu Asn Gln Lys Asn Glu Ile Asn Pro Glu  
 225 230 235 240  
 Lys Leu Glu Lys

&lt;210&gt;361

&lt;211&gt;621

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;361

Met Thr Ile Ile Tyr Phe Ile Leu Ala Ala Leu Ala Leu Gly Ile Leu  
 1 5 10 15  
 Val Leu Ile His Glu Leu Gly His Leu Val Val Ala Lys Ala Val Gly  
 20 25 30  
 Met Ala Val Glu Ser Phe Ser Ile Gly Phe Gly Pro Ala Leu Phe Lys  
 35 40 45  
 Lys Arg Ile Gly Gly Ile Glu Tyr Arg Ile Gly Cys Ile Pro Phe Gly  
 50 55 60  
 Gly Tyr Val Arg Ile Arg Gly Met Glu Arg Thr Lys Glu Lys Gly Glu  
 65 70 75 80  
 Lys Gly Lys Ile Asp Ser Val Tyr Asp Ile Pro Gln Gly Phe Phe Ser

576

595 600 605  
 Ile Phe Leu Thr Phe Gln Asp Leu Phe Arg Phe Phe Gly  
 610 615 620  
 <210>362  
 <211>340  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>362  
 Ser Lys Val Ile Phe Gln Gln Leu Gln Glu Phe Ala Pro Leu Ala Ala  
 1 5 10 15  
 Ala Val Tyr Asn Glu Glu Val Tyr Asn Glu Ala Cys Gln Arg Phe Pro  
 20 25 30  
 His Met Gln Phe Phe Leu Gly Gln Glu Gly Leu Thr Gln Leu Cys Ile  
 35 40 45  
 Met Asp Thr Val Thr Thr Val Val Ala Ala Ser Ser Gly Ile Glu Ala  
 50 55 60  
 Leu Pro Ala Ile Leu Glu Ser Met Lys Lys Gly Lys Ala Leu Ala Leu  
 65 70 75 80  
 Ala Asn Lys Glu Ile Leu Val Cys Ala Gly Glu Leu Val Ser Lys Thr  
 85 90 95  
 Ala Lys Glu Asn Gly Ile Lys Val Leu Pro Ile Asp Ser Glu His Asn  
 100 105 110  
 Ala Leu Tyr Gln Cys Leu Glu Gly Arg Thr Ile Glu Gly Ile Lys Lys  
 115 120 125  
 Leu Ile Leu Thr Ala Ser Gly Gly Pro Leu Leu Asn Lys Ser Leu Glu  
 130 135 140  
 Glu Leu Ser Cys Val Thr Lys Gln Asp Val Leu Asn His Pro Ile Trp  
 145 150 155 160  
 Asn Met Gly Ser Lys Val Thr Val Asp Ser Ser Thr Leu Val Asn Lys  
 165 170 175  
 Gly Leu Glu Ile Ile Glu Ala Tyr Trp Leu Phe Gly Leu Glu Asn Val  
 180 185 190  
 Glu Ile Leu Ala Val Ile His Pro Gln Ser Leu Ile His Gly Met Val  
 195 200 205  
 Glu Phe Leu Asp Gly Ser Val Ile Ser Ile Met Asn Pro Pro Asp Met  
 210 215 220  
 Leu Phe Pro Ile Gln Tyr Ala Leu Thr Ala Pro Glu Arg Phe Ala Ser  
 225 230 235 240  
 Pro Arg Asp Gly Met Asp Phe Ser Lys Lys Gln Thr Leu Glu Phe Phe  
 245 250 255  
 Pro Val Asp Glu Glu Arg Phe Pro Ser Ile Arg Leu Ala Gln Gln Val  
 260 265 270  
 Leu Glu Lys Gln Gly Ser Ser Gly Ser Phe Phe Asn Ala Ala Asn Glu  
 275 280 285  
 Val Leu Val Arg Arg Phe Leu Cys Glu Glu Ile Ser Trp Cys Asp Ile  
 290 295 300  
 Leu Arg Lys Leu Thr Thr Leu Met Glu Cys His Lys Val Tyr Ala Cys  
 305 310 315 320  
 His Ser Leu Glu Asp Ile Leu Glu Val Asp Gly Glu Ala Arg Ala Leu  
 325 330 335  
 Ala Gln Glu Ile  
 340  
 <210>363  
 <211>329  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>363  
 Lys Lys Gly Ser Leu Met Ala Leu Gly Pro Ser Pro Tyr Tyr Gly Val  
 1 5 10 15  
 Ser Phe Phe Gln Phe Phe Ser Val Phe Phe Ser Arg Leu Phe Ser Gly  
 20 25 30  
 Ser Leu Phe Thr Gly Ser Leu Tyr Ile Asp Asp Ile Gln Ile Ile Val  
 35 40 45  
 Phe Leu Ala Ile Ser Cys Ser Gly Ala Phe Ala Gly Thr Phe Leu Val

50 55 60  
 Leu Arg Lys Met Ala Met Tyr Ala Asn Ala Val Ser His Thr Val Leu  
 65 70 75 80  
 Phe Gly Leu Val Cys Val Cys Leu Phe Thr His Gln Leu Thr Thr Leu  
 85 90 95  
 Ser Leu Gly Thr Leu Thr Leu Ala Ala Met Ala Thr Ala Met Leu Thr  
 100 105 110  
 Gly Phe Leu Ile Tyr Phe Ile Arg Asn Thr Phe Lys Val Ser Glu Glu  
 115 120 125  
 Ser Ser Thr Ala Leu Val Phe Ser Leu Leu Phe Ser Leu Ser Leu Val  
 130 135 140  
 Leu Leu Val Phe Met Thr Lys Asn Ala His Ile Gly Thr Glu Leu Val  
 145 150 155 160  
 Leu Gly Asn Ala Asp Ser Leu Thr Lys Glu Asp Ile Phe Pro Val Thr  
 165 170 175  
 Ile Val Ile Leu Ala Asn Ala Val Ile Thr Ile Phe Ala Phe Arg Ser  
 180 185 190  
 Leu Val Cys Ser Ser Phe Asp Ser Val Phe Ala Ser Ser Leu Gly Ile  
 195 200 205  
 Pro Ile Arg Leu Val Asp Tyr Leu Ile Ile Phe Gln Leu Ser Ala Cys  
 210 215 220  
 Leu Val Gly Ala Phe Lys Ala Val Gly Val Leu Met Ala Leu Ala Phe  
 225 230 235 240  
 Leu Ile Ile Pro Ser Leu Ile Ala Lys Val Ile Ala Lys Ser Ile Arg  
 245 250 255  
 Ser Leu Met Ala Trp Ser Leu Val Phe Ser Ile Xaa Thr Ala Phe Leu  
 260 265 270  
 Ala Pro Ala Ser Ser Arg Ala Ile Leu Ser Ala Tyr Asp Leu Gly Leu  
 275 280 285  
 Ser Thr Ser Gly Ile Ser Val Val Phe Leu Thr Met Met Tyr Ile Val  
 290 295 300  
 Val Lys Phe Ile Ser Tyr Phe Arg Gly Tyr Phe Ser Lys Asn Phe Glu  
 305 310 315 320  
 Lys Ile Ser Glu Lys Ser Ser Gln Tyr  
 325

&lt;210&gt;364

&lt;211&gt;391

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;364

Trp Arg Asn Met Phe Ser His Cys Lys Leu Leu Phe Phe Gly Leu Cys  
 1 5 10 15  
 Cys Leu Gly Val Leu Leu Arg Tyr Leu Val Met Gly Ile Ile Val Phe  
 20 25 30  
 Leu Gly Lys Val Cys Lys Leu His Lys Asp Ser Ala Leu Cys Phe Val  
 35 40 45  
 Leu Val Val Phe Phe Ala Ile Gly Val Ile Leu Ala Ser Tyr Val Lys  
 50 55 60  
 Glu Ser Ser Pro Thr Leu Tyr Asn Arg Ile Asn Ala Tyr Leu Tyr Gly  
 65 70 75 80  
 Gln Ala Ala Thr Leu Gly Phe Leu Glu Ala Thr Leu Ala Ala Ile Val  
 85 90 95  
 Phe Cys Ala Ser Leu Phe Ala Leu Trp Trp Trp Tyr Arg Gln Ile Val  
 100 105 110  
 Val Thr Thr Phe Asp Lys Asp Phe Ala Val Thr Cys Gly Leu Lys Thr  
 115 120 125  
 Val Leu Tyr Glu Ala Leu Ser Leu Ile Phe Ile Ser Leu Val Ile Val  
 130 135 140  
 Ser Gly Val Arg Ser Val Gly Ile Val Leu Ile Ser Ala Met Phe Val  
 145 150 155 160  
 Ala Pro Ser Leu Gly Ala Arg Gln Leu Ser Asp Arg Leu Ser Thr Ile  
 165 170 175  
 Leu Ile Leu Ser Ala Phe Phe Gly Gly Ile Ser Gly Ala Leu Gly Ser  
 180 185 190

Tyr Ile Ser Val Ala Phe Thr Cys Arg Ala Ile Ile Gly Gln Gln Ala  
 195 200 205  
 Val Pro Val Thr Leu Pro Thr Gly Pro Leu Val Val Ile Cys Ala Gly  
 210 215 220  
 Leu Leu Ala Gly Leu Cys Leu Leu Phe Ser Pro Lys Ser Gly Trp Val  
 225 230 235 240  
 Ile Arg Phe Val Arg Arg Lys His Phe Ser Phe Ser Lys Asp Gln Glu  
 245 250 255  
 His Leu Leu Lys Val Phe Trp His Ile Ser His Asn Arg Leu Glu Asn  
 260 265 270  
 Ile Ser Val Arg Asp Phe Val Cys Ser Tyr Lys Tyr Gln Glu Tyr Phe  
 275 280 285  
 Gly Pro Lys Pro Phe Pro Arg Trp Arg Val Gln Ile Leu Glu Trp Arg  
 290 295 300  
 Gly Tyr Val Lys Lys Glu Gln Asp Tyr Tyr Arg Leu Thr Lys Lys Gly  
 305 310 315 320  
 Arg Ser Glu Ala Leu Arg Leu Val Arg Ala His Arg Leu Trp Glu Ser  
 325 330 335  
 Tyr Leu Val Asn Ser Leu Asp Phe Ser Lys Glu Ser Val His Glu Leu  
 340 345 350  
 Ala Glu Glu Ile Glu His Val Leu Thr Glu Glu Leu Asp His Thr Leu  
 355 360 365  
 Thr Glu Ile Leu Asn Asp Pro Cys Tyr Asp Pro His Arg Gln Ile Ile  
 370 375 380  
 Pro Asn Lys Lys Lys Glu Val  
 385 390

&lt;210&gt;365

&lt;211&gt;113

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;365

Thr Phe Gly Thr Asn Pro Glu Ala Leu Ser Arg Lys Thr Ile Trp Ile  
 1 5 10 15  
 Val Leu Ile Met Leu Ser Cys Val Phe Ser Asp Thr Ile Phe Leu Ser  
 20 25 30  
 Ser Phe Leu Ala Val Thr Leu Ile Cys Met Thr Thr Ala Leu Trp Gly  
 35 40 45  
 Thr Ile Leu Leu Ile Ser Lys Gln Pro Leu Leu Ser Glu Ser Leu Ser  
 50 55 60  
 His Ala Ser Tyr Pro Gly Leu Leu Val Gly Ala Leu Met Ala Gln Tyr  
 65 70 75 80  
 Val Phe Ser Leu Gln Ala Ser Ile Phe Trp Ile Val Leu Phe Gly Cys  
 85 90 95  
 Ala Ala Ser Val Phe Gly Tyr Gly Asp His Cys Phe Leu Arg Glu Ser  
 100 105 110  
 Met

&lt;210&gt;366

&lt;211&gt;259

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;366

Leu Asn Val Lys Asp Glu Thr Phe Trp Ser Val His Asn Leu Cys Val  
 1 5 10 15  
 Asn Tyr Glu His Ala Ala Val Leu Tyr His Ile Ser Phe Ser Leu Gly  
 20 25 30  
 Lys Gly Ser Leu Thr Ala Ile Leu Gly Pro Asn Gly Ala Gly Lys Ser  
 35 40 45  
 Thr Leu Leu Lys Ala Ser Leu Gly Leu Ile Lys Pro Ser Ser Gly Thr  
 50 55 60  
 Val Tyr Phe Phe Asn Gln Lys Phe Lys Lys Val Arg Gln Arg Ile Ala  
 65 70 75 80  
 Tyr Met Pro Gln Arg Ala Ser Val Asp Trp Asp Phe Pro Met Thr Val  
 85 90 95

Leu Asp Leu Ala Leu Met Gly Cys Tyr Ser Tyr Lys Gly Met Trp Gly  
 100 105 110  
 Arg Ile Ser Ser Asp Asp Arg Arg Glu Ala Phe His Ile Leu Glu Arg  
 115 120 125  
 Val Gly Leu Glu Ser Val Ala Asp Arg Gln Ile Gly Gln Leu Ser Gly  
 130 135 140  
 Gly Gln Gln Gln Arg Ala Phe Leu Ala Arg Ala Leu Met Gln Lys Ala  
 145 150 155 160  
 Asp Leu Tyr Leu Met Asp Glu Leu Phe Ser Ala Ile Asp Met Ala Ser  
 165 170 175  
 Phe Lys Thr Ser Val Gly Val Leu Gln Glu Leu Arg Asp Gln Gly Lys  
 180 185 190  
 Thr Ile Val Val Val His His Asp Leu Ser His Val Arg Gln Leu Phe  
 195 200 205  
 Asp His Val Val Leu Leu Asn Lys Arg Leu Ile Cys Cys Gly Pro Thr  
 210 215 220  
 Asp Glu Cys Leu Asn Gly Asp Thr Ile Phe Gln Thr Tyr Gly Cys Glu  
 225 230 235 240  
 Ile Glu Leu Leu Glu Gln Thr Leu Lys Leu Ser Arg Gly Lys Gln Phe  
 245 250 255  
 Gly Ser Cys

&lt;210&gt;367

&lt;211&gt;336

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;367

Trp Ile Leu Lys Asn Ala Ser Arg Glu Met Asp Ala Lys Met Gly Tyr  
 1 5 10 15  
 Ile Phe Lys Val Met Arg Trp Ile Phe Cys Phe Val Ala Cys Gly Ile  
 20 25 30  
 Thr Phe Gly Cys Thr Asn Ser Gly Phe Gln Asn Ala Asn Ser Arg Pro  
 35 40 45  
 Cys Ile Leu Ser Met Asn Arg Met Ile His Asp Cys Val Glu Arg Val  
 50 55 60  
 Val Gly Asn Arg Leu Ala Thr Ala Val Leu Ile Lys Gly Ser Leu Asp  
 65 70 75 80  
 Pro His Ala Tyr Glu Met Val Lys Gly Asp Lys Asp Lys Ile Ala Gly  
 85 90 95  
 Ser Ala Val Ile Phe Cys Asn Gly Leu Gly Leu Glu His Thr Leu Ser  
 100 105 110  
 Leu Arg Lys His Leu Glu Asn Asn Pro Asn Ser Val Lys Leu Gly Glu  
 115 120 125  
 Arg Leu Ile Ala Arg Gly Ala Phe Val Pro Leu Glu Glu Asp Gly Ile  
 130 135 140  
 Cys Asp Pro His Ile Trp Met Asp Leu Ser Ile Trp Lys Glu Ala Val  
 145 150 155 160  
 Ile Glu Ile Thr Glu Val Leu Ile Glu Lys Phe Pro Glu Trp Ser Ala  
 165 170 175  
 Glu Phe Lys Ala Asn Ser Glu Glu Leu Val Cys Glu Met Ser Ile Leu  
 180 185 190  
 Asp Ser Trp Ala Lys Gln Cys Leu Ser Thr Ile Pro Glu Asn Leu Arg  
 195 200 205  
 Tyr Leu Val Ser Gly His Asn Ala Phe Ser Tyr Phe Thr Arg Arg Tyr  
 210 215 220  
 Leu Ala Thr Pro Glu Glu Val Ala Ser Gly Ala Trp Arg Ser Arg Cys  
 225 230 235 240  
 Ile Ser Pro Glu Gly Leu Ser Pro Glu Ala Gln Ile Ser Val Arg Asp  
 245 250 255  
 Ile Met Ala Val Val Asp Tyr Ile Asn Glu His Asp Val Ser Val Val  
 260 265 270  
 Phe Pro Glu Asp Thr Leu Asn Gln Asp Ala Leu Lys Lys Ile Val Ser  
 275 280 285  
 Ser Leu Lys Lys Ser His Leu Val Arg Leu Ala Gln Lys Pro Leu Tyr

290 295 300  
 Ser Asp Asn Val Asp Asp Asn Tyr Phe Ser Thr Phe Lys His Asn Val  
 305 310 315 320  
 Cys Leu Ile Thr Glu Glu Leu Gly Gly Val Ala Leu Glu Cys Gln Arg  
 325 330 335

&lt;210&gt;368

&lt;211&gt;172

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;368

Lys Val Gly Phe Met Ala Val Glu Gln Ser His Ile Lys Glu Glu Ile  
 1 5 10 15  
 Glu Lys Leu Ile Gly Lys Ala Ile Lys Arg Val Cys Gly Asn Lys Glu  
 20 25 30  
 Asn Asp Leu Cys Arg Tyr Leu Pro Gly Pro Ser Gly Gly Tyr Met His  
 35 40 45  
 His Phe Thr Leu Lys Lys Met Lys Ser Ala Ala Pro Glu Gln Leu Leu  
 50 55 60  
 Lys Met Leu Lys Thr Phe Ile Leu Glu Ser Glu Thr Pro Arg Thr Ile  
 65 70 75 80  
 Asn Pro Lys Pro Arg Ala Pro Arg Gly Ser Lys Lys Arg Arg Asp Phe  
 85 90 95  
 Ile Asn Phe Thr Lys Thr Asp Ile Glu Arg Val Leu Glu Leu Ala Arg  
 100 105 110  
 Gln Val Gly Asp Lys Asp Leu Leu Ala Arg Phe Ser Pro Lys Lys Pro  
 115 120 125  
 Leu Thr Ser Leu Lys Arg Glu Leu Ile Arg Ser Ile Arg Asn Gly Ile  
 130 135 140  
 Val Ser Val Glu Leu Trp Asn Ala Tyr Val Glu Ala Val Lys Ala Val  
 145 150 155 160  
 Ser Ser Pro Asn Leu Glu Val Thr Ser Pro Phe Val  
 165 170

&lt;210&gt;369

&lt;211&gt;524

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;369

Lys Ile Lys Val Phe Gln Arg Val Asn Met Thr Lys Thr Glu Glu Lys  
 1 5 10 15  
 Pro Phe Gly Lys Leu Arg Ser Phe Leu Trp Pro Ile His Thr His Glu  
 20 25 30  
 Leu Lys Lys Val Leu Pro Met Phe Leu Met Phe Phe Cys Ile Thr Phe  
 35 40 45  
 Asn Tyr Thr Val Leu Arg Asp Thr Lys Asp Thr Leu Ile Val Gly Ala  
 50 55 60  
 Pro Gly Ser Gly Ala Glu Ala Ile Pro Phe Ile Lys Phe Trp Leu Val  
 65 70 75 80  
 Val Pro Cys Ala Ile Ile Phe Met Leu Ile Tyr Ala Lys Leu Ser Asn  
 85 90 95  
 Ile Leu Ser Lys Gln Ala Leu Phe Tyr Ala Val Gly Thr Pro Phe Leu  
 100 105 110  
 Ile Phe Phe Ala Leu Phe Pro Thr Val Ile Tyr Pro Leu Arg Asp Val  
 115 120 125  
 Leu His Pro Thr Glu Phe Ala Asp Arg Leu Gln Ala Ile Leu Pro Pro  
 130 135 140  
 Gly Leu Leu Gly Leu Val Ala Ile Leu Arg Asn Trp Thr Phe Ala Ala  
 145 150 155 160  
 Phe Tyr Val Leu Ala Glu Leu Trp Gly Ser Val Met Leu Ser Leu Met  
 165 170 175  
 Phe Trp Gly Phe Ala Asn Glu Ile Thr Lys Ile His Glu Ala Lys Arg  
 180 185 190  
 Phe Tyr Ala Leu Phe Gly Ile Gly Ala Asn Ile Ser Leu Leu Ala Ser  
 195 200 205  
 Gly Arg Ala Ile Val Trp Ala Ser Lys Leu Arg Ala Ser Val Ser Glu

210 215 220  
 Gly Val Asp Pro Trp Gly Ile Ser Leu Arg Leu Leu Met Ala Met Thr  
 225 230 235 240  
 Ile Val Ser Gly Leu Val Leu Met Ala Ser Tyr Trp Trp Ile Asn Lys  
 245 250 255  
 Asn Val Leu Thr Asp Pro Arg Phe Tyr Asn Pro Glu Glu Met Gln Lys  
 260 265 270  
 Gly Lys Lys Gly Ala Lys Pro Lys Met Asn Met Lys Asp Ser Phe Leu  
 275 280 285  
 Tyr Leu Ala Arg Ser Pro Tyr Ile Leu Leu Leu Ala Leu Leu Val Ile  
 290 295 300  
 Ala Tyr Gly Ile Cys Ile Asn Leu Ile Glu Val Thr Trp Lys Ser Gln  
 305 310 315 320  
 Leu Lys Leu Gln Tyr Pro Asn Met Asn Asp Tyr Ser Glu Phe Met Gly  
 325 330 335  
 Asn Phe Ser Phe Trp Thr Gly Val Val Ser Val Leu Ile Met Leu Phe  
 340 345 350  
 Val Gly Gly Asn Val Ile Arg Lys Phe Gly Trp Leu Thr Gly Ala Leu  
 355 360 365  
 Val Thr Pro Val Met Val Leu Leu Thr Gly Ile Val Phe Phe Ala Leu  
 370 375 380  
 Val Ile Phe Arg Asn Gln Ala Ser Gly Leu Val Ala Met Phe Gly Thr  
 385 390 395 400  
 Thr Pro Leu Met Leu Ala Val Val Val Gly Ala Ile Gln Asn Ile Leu  
 405 410 415  
 Ser Lys Ser Thr Lys Tyr Ala Leu Phe Asp Ser Thr Lys Glu Met Ala  
 420 425 430  
 Tyr Ile Pro Leu Asp Gln Glu Gln Lys Val Lys Gly Lys Ala Ala Ile  
 435 440 445  
 Asp Val Val Ala Ala Arg Phe Gly Lys Ser Gly Gly Ala Leu Ile Gln  
 450 455 460  
 Gln Gly Leu Leu Val Ile Cys Gly Ser Ile Gly Ala Met Thr Pro Tyr  
 465 470 475 480  
 Leu Ala Val Ile Leu Leu Phe Ile Ile Ala Ile Trp Leu Val Ser Ala  
 485 490 495  
 Thr Lys Leu Asn Lys Leu Phe Leu Ala Gln Ser Ala Leu Lys Glu Gln  
 500 505 510  
 Glu Val Ala Gln Glu Asp Ser Ala Pro Ala Ser Ser  
 515 520  
 <210>370  
 <211>448  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>370  
 Leu Pro Phe His Glu Phe Val Arg Phe Phe Gln Ser Lys Lys Val Ile  
 1 5 10 15  
 Ile Thr Val Arg His Ser Gly Cys Thr Met Lys Cys Ser Pro Leu Thr  
 20 25 30  
 Leu Val Pro His Ile Phe Leu Lys Asn Asp Cys Glu Cys His Arg Ser  
 35 40 45  
 Cys Ser Leu Lys Ile Arg Thr Ile Ala Arg Leu Ile Leu Gly Leu Val  
 50 55 60  
 Leu Ala Leu Val Ser Ala Leu Ser Phe Val Phe Leu Ala Ala Pro Ile  
 65 70 75 80  
 Ser Tyr Ala Ile Gly Gly Thr Leu Ala Leu Ala Ala Ile Val Ile Leu  
 85 90 95  
 Ile Ile Thr Leu Val Val Ala Leu Leu Ala Lys Ser Lys Val Leu Pro  
 100 105 110  
 Ile Pro Asn Glu Leu Gln Lys Ile Ile Tyr Asn Arg Tyr Pro Lys Glu  
 115 120 125  
 Val Phe Tyr Phe Val Lys Thr His Ser Leu Thr Val Asn Glu Leu Lys  
 130 135 140  
 Ile Phe Ile Asn Cys Trp Lys Ser Gly Thr Asp Leu Pro Pro Asn Leu  
 145 150 155 160



His Lys Lys Ala Glu Ala Phe Gly Ile Asp Ile Leu Lys Ser Ile Asp  
 165 170 175  
 Leu Thr Leu Phe Pro Glu Phe Glu Glu Ile Leu Leu Gln Asn Cys Pro  
 180 185 190  
 Leu Tyr Trp Leu Ser His Phe Ile Asp Lys Thr Glu Ser Val Ala Gly  
 195 200 205  
 Glu Ile Gly Leu Asn Lys Thr Gln Lys Val Tyr Gly Leu Leu Gly Pro  
 210 215 220  
 Leu Ala Phe His Lys Gly Tyr Thr Thr Ile Phe His Ser Tyr Thr Arg  
 225 230 235 240  
 Pro Leu Leu Thr Leu Ile Ser Glu Ser Gln Tyr Lys Phe Leu Tyr Ser  
 245 250 255  
 Lys Ala Ser Lys Asn Gln Trp Asp Ser Pro Ser Val Lys Lys Thr Cys  
 260 265 270  
 Glu Glu Ile Phe Lys Glu Leu Pro His Asn Met Ile Phe Arg Lys Asp  
 275 280 285  
 Val Gln Gly Ile Ser Gln Phe Leu Phe Phe Ser His Gly Ile  
 290 295 300  
 Thr Trp Glu Gln Ala Gln Met Ile Gln Leu Ile Asn Pro Asp Asn Trp  
 305 310 315 320  
 Lys Met Leu Cys Gln Phe Asp Lys Ala Gly Gly His Cys Ser Met Ala  
 325 330 335  
 Thr Phe Gly Gly Phe Leu Asn Thr Glu Thr Asn Met Phe Asp Pro Val  
 340 345 350  
 Ser Ser Asn Tyr Glu Pro Thr Val Asn Phe Met Thr Trp Lys Glu Leu  
 355 360 365  
 Lys Val Leu Leu Glu Lys Val Lys Glu Ser Pro Met His Pro Ala Ser  
 370 375 380  
 Ala Leu Val Gln Lys Ile Cys Val Asn Thr Thr His His Gln Asn Leu  
 385 390 395 400  
 Leu Lys Arg Trp Gln Phe Val Arg Asn Thr Ser Ser Gln Trp Thr Ser  
 405 410 415  
 Ser Leu Pro Gln Tyr Ala Phe His Ala Gln Thr Tyr Lys Leu Glu Lys  
 420 425 430  
 Lys Asn Arg Lys Gln Ser Pro Tyr Thr Ile Phe Pro Ile Arg Gly Val  
 435 440 445

&lt;210&gt;371

&lt;211&gt;365

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;371

Ile Lys Glu Phe Asn His Tyr Ser Tyr Cys Tyr Gln Cys His Leu Thr  
 1 5 10 15  
 Leu Arg Thr Leu Ile Ala Phe Leu Cys Val Ala Ala Pro Val Ser Tyr  
 20 25 30  
 Ile Leu Ser Gly Ala Leu Leu Gly Leu Gly Leu Leu Ile Ala Leu Ile  
 35 40 45  
 Gly Val Ile Leu Gly Ile Lys Lys Ile Thr Pro Met Ile Ser Ser Lys  
 50 55 60  
 Glu Gln Val Phe Pro Gln Glu Leu Val Asn Arg Ile Arg Ala His Tyr  
 65 70 75 80  
 Pro Lys Phe Val Ser Asp Phe Val Ser Glu Ala Lys Pro Asn Leu Lys  
 85 90 95  
 Asp Leu Ile Ser Phe Ile Asp Leu Leu Asn Gln Leu His Ser Glu Val  
 100 105 110  
 Gly Ser Ser Thr Asn Tyr Asn Val Ser Glu Glu Leu Gln Gln Lys Ile  
 115 120 125  
 Asp Thr Phe Glu Gly Ile Ala Arg Leu Lys Asn Glu Val Arg Thr Ala  
 130 135 140  
 Ser Leu Lys Arg Leu Glu Ser Ala Ala Ser Ser Arg Pro Leu Phe Pro  
 145 150 155 160  
 Ser Leu Pro Lys Ile Leu Gln Lys Val Phe Pro Phe Phe Trp Leu Gly  
 165 170 175  
 Glu Phe Ile Ser Ala Gly Ser Lys Val Val Glu Leu His Arg Val Lys

180 185 190  
 Lys Ile Gly Ser Leu Glu Glu Asp Leu Ser Asp Tyr Ile Lys Pro  
 195 200 205  
 Glu Met Leu Pro Thr Tyr Trp Leu Ile Pro Leu Asp Phe Arg Pro Thr  
 210 215 220  
 Asn Ser Ser Ile Leu Asn Leu His Thr Leu Val Leu Ala Arg Val Leu  
 225 230 235 240  
 Thr Arg Asp Val Phe Gln His Leu Lys Tyr Ala Ala Leu Asn Gly Glu  
 245 250 255  
 Trp Asn Leu Asn His Ser Asp Leu Asn Thr Met Lys Gln Gln Leu Phe  
 260 265 270  
 Ala Lys Tyr His Ala Ala Tyr Gln Ser Tyr Lys His Leu Ser Gln Pro  
 275 280 285  
 Ser Leu Gln Glu Asp Glu Phe Tyr Asn Leu Leu Leu Cys Ile Phe Lys  
 290 295 300  
 His Arg Tyr Ser Trp Lys Gln Met Ser Leu Ile Lys Thr Val Pro Ala  
 305 310 315 320  
 Asp Leu Trp Glu Asn Leu Cys Cys Leu Thr Leu Asp His Thr Gly Arg  
 325 330 335  
 Pro Gln Asp Met Glu Phe Ala Ser Leu Ile Gly Thr Leu Tyr Thr Gln  
 340 345 350  
 Gly Leu Ile His Lys Glu Ser Glu His Phe Phe Leu His  
 355 360 365  
 <210>372  
 <211>455  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>372  
 Ile Arg Asp Phe Tyr Leu His Ile Ile Tyr Thr Ala Phe Asn Arg Ser  
 1 5 10 15  
 Ile Ser Lys Glu Leu Ala Met Ser Met Thr Ile Val Pro His Ala Leu  
 20 25 30  
 Phe Lys Asn His Cys Glu Cys His Ser Thr Phe Pro Leu Ser Ser Arg  
 35 40 45  
 Thr Ile Val Arg Ile Ala Ile Ala Ser Leu Phe Cys Ile Gly Ala Leu  
 50 55 60  
 Ala Ala Leu Gly Cys Leu Ala Pro Pro Val Ser Tyr Ile Val Gly Ser  
 65 70 75 80  
 Val Leu Ala Phe Ile Ala Phe Val Ile Leu Ser Leu Val Ile Leu Ala  
 85 90 95  
 Leu Ile Phe Gly Glu Lys Lys Leu Pro Pro Thr Pro Arg Ile Ile Pro  
 100 105 110  
 Asp Arg Phe Thr His Val Ile Asp Glu Ala Tyr Gly Leu Ser Ile Ser  
 115 120 125  
 Ala Phe Val Arg Glu Gln Gln Val Thr Leu Ala Glu Phe Arg Gln Phe  
 130 135 140  
 Ser Thr Ala Leu Leu Cys Asn Ile Ser Pro Glu Lys Ile Lys Gln  
 145 150 155 160  
 Leu Pro Ser Glu Leu Arg Ser Lys Val Glu Ser Phe Gly Ile Ser Arg  
 165 170 175  
 Leu Ala Gly Asp Leu Glu Lys Asn Asn Trp Pro Ile Phe Glu Asp Leu  
 180 185 190  
 Leu Ser Gln Thr Cys Pro Leu Tyr Trp Leu Gln Lys Phe Ile Ser Ala  
 195 200 205  
 Gly Asp Pro Gln Val Cys Arg Asp Leu Gly Val Pro Arg Glu Cys Tyr  
 210 215 220  
 Gly Tyr Tyr Trp Leu Gly Pro Leu Gly Tyr Ser Thr Ala Lys Ala Thr  
 225 230 235 240  
 Ile Phe Cys Lys Glu Thr His His Ile Leu Gln Gln Leu Thr Lys Glu  
 245 250 255  
 Asp Val Leu Leu Leu Lys Asn Lys Ala Leu Gln Glu Lys Trp Asp Thr  
 260 265 270  
 Asp Glu Val Lys Ala Ile Val Glu Arg Ile Tyr Thr Thr Thr Ala  
 275 280 285

Arg Gly Thr Leu Lys Thr Glu Ala Gly Gly Leu Thr Lys Glu Thr Ile  
 290 295 300  
 Ser Lys Glu Leu Leu Leu Leu Ser Leu His Gly Tyr Ser Phe Asp Gln  
 305 310 315 320  
 Leu Gln Leu Ile Thr Gln Leu Pro Arg Asp Ala Trp Asp Trp Leu Cys  
 325 330 335  
 Phe Val Asp Asn Ser Thr Ala Tyr Asn Leu Gln Leu Cys Ala Leu Val  
 340 345 350  
 Gly Ala Leu Ser Ser Gln Asn Leu Leu Asp Glu Ser Ser Ile Asp Phe  
 355 360 365  
 Asp Val Asn Leu Gly Leu Tyr Val Ile Gln Asp Leu Lys Glu Ala Val  
 370 375 380  
 Gln Ala Phe Ser Ala Ser Asp Glu Pro Lys Lys Glu Leu Gly Lys Phe  
 385 390 395 400  
 Leu Leu Arg His Leu Ser Ser Val Ser Lys Arg Leu Glu Ser Val Leu  
 405 410 415  
 Arg Gln Gly Leu His Arg Ile Ala Leu Glu His Gly Asn Ala Arg Ala  
 420 425 430  
 Arg Val Tyr Asp Val Asn Phe Val Thr Gly Ala Arg Ile His Arg Lys  
 435 440 445  
 Thr Ser Ile Phe Phe Lys Asp  
 450 455  
 <210>373  
 <211>291  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>373  
 Tyr Ser Ser His Asn Gly Ala Ser Met Val Asn Ile Gln Pro Val Tyr  
 1 5 10 15  
 Arg Asn Thr Gln Val Asn Tyr Ser Gln Ala Thr Gln Phe Ser Val Cys  
 20 25 30  
 Gln Pro Ala Leu Ser Leu Ile Ile Val Ser Val Val Ala Val Leu  
 35 40 45  
 Ala Ile Val Ala Leu Val Cys Ser Gln Ser Leu Leu Ser Ile Glu Leu  
 50 55 60  
 Gly Thr Ala Leu Val Leu Val Ser Leu Ile Leu Phe Ala Ser Ala Met  
 65 70 75 80  
 Phe Met Ile Tyr Lys Met Arg Gln Glu Pro Lys Glu Leu Leu Ile Pro  
 85 90 95  
 Lys Lys Ile Met Glu Leu Ile Gln Glu His Tyr Pro Ser Ile Val Val  
 100 105 110  
 Asp Phe Ile Arg Asp Gln Glu Val Ser Ile Tyr Glu Ile His His Leu  
 115 120 125  
 Ile Ser Ile Leu Asn Lys Thr Asn Val Phe Asp Lys Ala Pro Val Tyr  
 130 135 140  
 Leu Gln Glu Lys Leu Leu Gln Phe Gly Ile Glu Lys Phe Lys Asp Val  
 145 150 155 160  
 His Pro Ser Lys Leu Pro Asn Phe Glu Glu Ile Leu Leu Gln His Cys  
 165 170 175  
 Pro Leu His Trp Leu Gly Arg Leu Val Tyr Pro Met Val Ser Asp Val  
 180 185 190  
 Thr Pro Gly Thr Tyr Gly Tyr Tyr Trp Cys Gly Pro Leu Gly Leu Tyr  
 195 200 205  
 Glu Asn Ala Pro Ser Leu Phe Glu Arg Arg Ser Leu Leu Leu Lys  
 210 215 220  
 Lys Ile Ser Phe Gly Glu Phe Ala Leu Leu Glu Asp Gly Leu Lys Lys  
 225 230 235 240  
 Asn Thr Trp Ser Ser Ser Glu Leu Val Gln Ile Arg Gln Asn Leu Phe  
 245 250 255  
 Thr Arg Tyr Tyr Ala Asp Lys Glu Glu Val Asp Glu Ala Glu Leu Asn  
 260 265 270  
 Ala Asp Tyr Glu Gln Phe Asp Ser Leu Leu His Leu Ile Phe Ser His  
 275 280 285  
 Lys Leu Ser

290  
 <210>374  
 <211>607  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>374  
 Thr Leu Gln Tyr Ile Leu Lys Glu Tyr Lys Ile Glu Asn Ile Arg Asn  
 1 5 10 15  
 Phe Ser Ile Ile Ala His Ile Asp His Gly Lys Ser Thr Ile Ala Asp  
 20 25 30  
 Arg Leu Leu Glu Ser Thr Ser Thr Val Glu Glu Arg Glu Met Arg Glu  
 35 40 45  
 Gln Leu Leu Asp Ser Met Asp Leu Glu Arg Glu Arg Gly Ile Thr Ile  
 50 55 60  
 Lys Ala His Pro Val Thr Met Thr Tyr Leu Tyr Glu Gly Glu Val Tyr  
 65 70 75 80  
 Gln Leu Asn Leu Ile Asp Thr Pro Gly His Val Asp Phe Ser Tyr Glu  
 85 90 95  
 Val Ser Arg Ser Leu Ser Ala Cys Glu Gly Ala Leu Leu Ile Val Asp  
 100 105 110  
 Ala Ala Gln Gly Val Gln Ala Gln Ser Leu Ala Asn Val Tyr Leu Ala  
 115 120 125  
 Leu Glu Arg Asp Leu Glu Ile Ile Pro Val Leu Asn Lys Ile Asp Leu  
 130 135 140  
 Pro Ala Ala Asp Pro Val Arg Ile Ala Gln Gln Ile Glu Asp Tyr Ile  
 145 150 155 160  
 Gly Leu Asp Thr Thr Asn Ile Ile Ala Cys Ser Ala Lys Thr Gly Gln  
 165 170 175  
 Gly Ile Pro Ala Ile Leu Lys Ala Ile Ile Asp Leu Val Pro Pro Pro  
 180 185 190  
 Lys Ala Pro Ala Glu Thr Glu Leu Lys Ala Leu Val Phe Asp Ser His  
 195 200 205  
 Tyr Asp Pro Tyr Val Gly Ile Met Val Tyr Val Arg Ile Ile Ser Gly  
 210 215 220  
 Glu Leu Lys Lys Gly Asp Arg Ile Thr Phe Met Ala Ala Lys Gly Ser  
 225 230 235 240  
 Ser Phe Glu Val Leu Gly Ile Gly Ala Phe Leu Pro Lys Ala Thr Phe  
 245 250 255  
 Ile Glu Gly Ser Leu Arg Pro Gly Gln Val Gly Phe Phe Ile Ala Asn  
 260 265 270  
 Leu Lys Lys Val Lys Asp Val Lys Ile Gly Asp Thr Val Thr Lys Thr  
 275 280 285  
 Lys His Pro Ala Lys Thr Pro Leu Glu Gly Phe Lys Glu Ile Asn Pro  
 290 295 300  
 Val Val Phe Ala Gly Ile Tyr Pro Ile Asp Ser Ser Asp Phe Asp Thr  
 305 310 315 320  
 Leu Lys Asp Ala Leu Gly Arg Leu Gln Leu Asn Asp Ser Ala Leu Thr  
 325 330 335  
 Ile Glu Gln Glu Ser Ser His Ser Leu Gly Phe Gly Phe Arg Cys Gly  
 340 345 350  
 Phe Leu Gly Leu Leu His Leu Glu Ile Ile Phe Glu Arg Ile Ile Arg  
 355 360 365  
 Glu Phe Asp Leu Asp Ile Ile Ala Thr Ala Pro Ser Val Ile Tyr Lys  
 370 375 380  
 Val Val Leu Lys Asn Gly Lys Val Leu Asp Ile Asp Asn Pro Ser Gly  
 385 390 395 400  
 Tyr Pro Asp Pro Ala Ile Ile Glu His Val Glu Glu Pro Trp Val His  
 405 410 415  
 Val Asn Ile Ile Thr Pro Gln Glu Tyr Leu Ser Asn Ile Met Asn Leu  
 420 425 430  
 Cys Leu Asp Lys Arg Gly Ile Cys Val Lys Thr Glu Met Leu Asp Gln  
 435 440 445  
 His Arg Leu Val Leu Ala Tyr Glu Leu Pro Leu Asn Glu Ile Val Ser  
 450 455 460

Asp Phe Asn Asp Lys Leu Lys Ser Val Thr Lys Gly Tyr Gly Ser Phe  
 465 470 475 480  
 Asp Tyr Arg Leu Gly Asp Tyr Arg Lys Gly Ser Ile Ile Lys Leu Glu  
 485 490 495  
 Val Leu Ile Asn Glu Glu Pro Ile Asp Ala Phe Ser Cys Leu Val His  
 500 505 510  
 Arg Asp Lys Ala Glu Ser Arg Gly Arg Ser Ile Cys Glu Lys Leu Val  
 515 520 525  
 Asp Val Ile Pro Gln Gln Leu Phe Lys Ile Pro Ile Gln Ala Ala Ile  
 530 535 540  
 Asn Lys Lys Val Ile Ala Arg Glu Thr Ile Arg Ala Leu Ser Lys Asn  
 545 550 555 560  
 Val Thr Ala Lys Cys Tyr Gly Gly Asp Ile Thr Arg Lys Arg Lys Leu  
 565 570 575  
 Trp Glu Lys Gln Lys Lys Gly Lys Lys Arg Met Lys Glu Phe Gly Lys  
 580 585 590  
 Val Ser Ile Pro Asn Thr Ala Phe Ile Glu Val Leu Lys Leu Asp  
 595 600 605  
 <210>375  
 <211>332  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>375  
 Gly Val Ala Ile Ser Gly Ser Tyr Phe Ser Ile Asn Ser Ser Lys Ser  
 1 5 10 15  
 Thr Gly Pro Ser Leu Leu Phe Leu Gly Arg Asn Trp Arg Cys Arg Pro  
 20 25 30  
 Leu Cys Lys Gly Cys Ser Gln Trp Tyr Arg Ile Arg Arg Tyr Pro Val  
 35 40 45  
 Asp Met Arg Thr Tyr Gly Ile Leu Arg Asp Phe Leu Lys Leu Ser Ala  
 50 55 60  
 Thr Ala Val Ala Thr Ile Leu Lys Glu Trp Asn Thr Leu Glu Leu Glu  
 65 70 75 80  
 Ser Tyr Leu Ile Arg Ile Ala Ser Glu Val Leu Ala Leu Lys Asp Pro  
 85 90 95  
 Glu Gly Ile Pro Val Ile Asp Thr Ile Leu Asp Val Val Gly Gln Lys  
 100 105 110  
 Gly Thr Gly Lys Trp Thr Ala Ile Asp Ala Leu Asn Ser Gly Val Pro  
 115 120 125  
 Leu Ser Leu Ile Ile Gly Ala Val Leu Ala Arg Phe Leu Ser Ser Trp  
 130 135 140  
 Lys Glu Ile Arg Glu Gln Ala Ala Arg Asn Tyr Pro Gly Thr Pro Leu  
 145 150 155 160  
 Ile Phe Glu Met Pro His Asp Pro Ser Val Phe Ile Gln Asp Val Phe  
 165 170 175  
 His Ala Leu Tyr Ala Ser Lys Ile Ile Ser Tyr Ala Gln Gly Phe Met  
 180 185 190  
 Leu Leu Gly Glu Ala Ser Lys Glu Tyr Asn Trp Gly Leu Asp Leu Gly  
 195 200 205  
 Glu Ile Ala Leu Met Trp Arg Gly Gly Cys Ile Ile Gln Ser Ala Phe  
 210 215 220  
 Leu Asp Val Ile His Lys Gly Phe Ala Ala Asn Pro Glu Asn Thr Ser  
 225 230 235 240  
 Leu Ile Phe Gln Glu Tyr Phe Arg Gly Ala Leu Arg His Ala Glu Met  
 245 250 255  
 Gly Trp Arg Arg Thr Val Val Thr Ala Ile Gly Ala Gly Leu Pro Ile  
 260 265 270  
 Pro Cys Leu Ala Ala Ala Ile Thr Phe Tyr Asp Gly Tyr Arg Thr Ala  
 275 280 285  
 Ser Ser Ser Met Ser Leu Ala Gln Gly Leu Arg Asp Tyr Phe Gly Ala  
 290 295 300  
 His Thr Tyr Glu Arg Asn Asp Arg Pro Arg Gly Glu Phe Tyr His Thr  
 305 310 315 320  
 Asp Trp Val His Thr Lys Thr Thr Glu Arg Val Lys

325

330

&lt;210&gt;376

&lt;211&gt;204

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;376

Val Ala Leu Gln Thr Asn Ile Gly Leu Ile Gly Leu Ala Val Met Gly  
 1 5 10 15  
 Lys Asn Leu Val Leu Asn Met Ile Asp His Gly Phe Ser Val Ser Val  
 20 25 30  
 Tyr Asn Arg Thr Pro Glu Lys Thr Arg Asp Phe Leu Lys Glu Tyr Pro  
 35 40 45  
 Asn His Arg Glu Leu Val Gly Phe Glu Ser Leu Glu Asp Phe Val Asn  
 50 55 60  
 Ser Leu Glu Arg Pro Arg Lys Ile Met Leu Met Ile Gln Ala Gly Lys  
 65 70 75 80  
 Pro Val Asp Gln Ser Ile His Ala Leu Leu Pro Phe Leu Glu Pro Gly  
 85 90 95  
 Asp Val Ile Ile Asp Gly Gly Asn Ser Tyr Phe Lys Asp Ser Glu Arg  
 100 105 110  
 Arg Cys Lys Glu Leu Gln Glu Lys Gly Ile Leu Phe Leu Gly Val Gly  
 115 120 125  
 Ile Ser Gly Gly Glu Glu Gly Ala Arg His Gly Pro Ser Ile Met Pro  
 130 135 140  
 Gly Gly Asn Pro Glu Ala Trp Pro Leu Val Ala Pro Ile Phe Gln Ser  
 145 150 155 160  
 Ile Ala Ala Lys Val Gln Gly Arg Pro Cys Cys Ser Trp Val Gly Thr  
 165 170 175  
 Gly Gly Ala Gly His Tyr Val Lys Ala Val His Asn Gly Ile Glu Tyr  
 180 185 190  
 Gly Asp Ile Gln Leu Ile Cys Glu Leu Thr Val Ser  
 195 200

&lt;210&gt;377

&lt;211&gt;422

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;377

Leu Ala Ile Leu Asn Tyr Val Arg Ser Leu Met Gln Ser Trp Leu Gln  
 1 5 10 15  
 Ser Leu Gln Glu Arg Asn Ile Leu Glu Asn Phe Thr Ala Gly Leu Glu  
 20 25 30  
 Ser Val Glu Gly Pro Ile Ala Ala Tyr Leu Gly Phe Asp Pro Thr Ala  
 35 40 45  
 Pro Ala Leu His Ile Gly His Trp Ile Gly Ile Cys Phe Leu Lys Arg  
 50 55 60  
 Leu Ala Ala Leu Gly Ile Thr Pro Ile Ala Leu Val Gly Gly Ala Thr  
 65 70 75 80  
 Gly Met Val Gly Asp Pro Ser Gly Lys Gln Ser Glu Arg Ser Leu Leu  
 85 90 95  
 Gln Thr Ser Glu Val Phe Asp Asn Ser Gln Lys Ile Thr Ala Cys Leu  
 100 105 110  
 Gln Arg Tyr Leu Pro Gly Val Thr Leu Val Asn Asn Ala Asp Trp Leu  
 115 120 125  
 Gln Glu Ile Ser Leu Ile Asp Phe Leu Arg Asp Ile Gly Lys His Phe  
 130 135 140  
 Arg Leu Gly Gln Met Leu Val Lys Asp Thr Ile Lys Gln Arg Val His  
 145 150 155 160  
 Ser Asp Glu Gly Ile Ser Tyr Thr Glu Phe Ser Tyr Leu Ile Leu Gln  
 165 170 175  
 Ser Tyr Asp Phe Tyr His Leu Phe Lys Asn Tyr Gly Thr Ile Leu Gln  
 180 185 190  
 Cys Gly Gly Ser Asp Gln Trp Gly Asn Ile Thr Ser Gly Ile Asp Phe  
 195 200 205  
 Ile Arg Arg Lys Gly Leu Gly Gln Ala Tyr Gly Leu Thr Tyr Pro Leu

210 215 220  
 Leu Thr Asn Ala Gln Gly Lys Lys Ile Gly Lys Thr Glu Ser Gly Thr  
 225 230 235 240  
 Val Trp Leu Asp Ser Asp Leu Thr Ser Pro Phe Glu Leu Tyr Gln Tyr  
 245 250 255  
 Leu Leu Arg Leu Pro Asp Asp Thr Ile Pro Lys Ile Ala Arg Thr Leu  
 260 265 270  
 Thr Leu Leu Ser Asn Glu Glu Ile Gln Asp Ile Asp Arg Arg Val Gln  
 275 280 285  
 Thr Asp Pro Val Ala Val Lys Glu Phe Val Ala Gln Asp Ile Leu Ser  
 290 295 300  
 Ala Ile His Gly Asp Leu Gly Leu Glu Glu Ala Leu Ser Val Thr Arg  
 305 310 315 320  
 Ser Met His Pro Gly Asn Leu Ser Ser Leu Ser Glu Lys Asp Phe His  
 325 330 335  
 Glu Leu Phe Ala Gly Gly Met Gly Ala Ser Leu Asp Lys Ser Glu Val  
 340 345 350  
 Leu Gly Lys Arg Trp Leu Asp Leu Phe Leu Val Leu Gly Leu Cys Lys  
 355 360 365  
 Ser Lys Gly Glu Ile Arg Arg Leu Ile Glu Gln Lys Gly Val Tyr Ile  
 370 375 380  
 Asn Asn Val Pro Ile Ala Asn Glu His Ser Val Cys Glu Glu Gln Asp  
 385 390 395 400  
 Ile Cys Tyr Gly His Tyr Val Leu Leu Ala Gln Gly Lys Lys Arg Lys  
 405 410 415  
 Leu Val Leu Tyr Leu Asn  
 420

&lt;210&gt;378

&lt;211&gt;103

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;378

Val Ala Met Ser Thr Ser Pro Ile Gly Val Pro Ser Met Leu Asn Ala  
 1 5 10 15  
 Ala Thr Ser Leu Asn Ala Thr Thr Ser Lys Ala Pro Leu Pro Thr Ser  
 20 25 30  
 Thr Leu Ala Glu Arg Ile Lys Glu Trp Leu Pro Arg Ile Leu Leu Leu  
 35 40 45  
 Ile Val Gly Ala Ile Phe Thr Ile Ala Gly Cys Ile Val Met Ala Leu  
 50 55 60  
 Thr Lys Gln Ile Leu Tyr Gly Leu Leu Cys Val Val Gly Gly Leu Leu  
 65 70 75 80  
 Leu Ala Leu Gly Leu Leu Leu Lys Pro Glu Asn Cys Ile Tyr Arg Asn  
 85 90 95  
 Ala Glu Ser Leu Arg Glu Ala  
 100

&lt;210&gt;379

&lt;211&gt;291

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;379

Leu Asp Lys Lys Lys Phe Val Lys Thr Gln Gln Thr Gln Asn Ile Ile  
 1 5 10 15  
 Glu Val Trp Asn Phe Tyr Trp Glu Thr Gln Glu Ile Glu Tyr Arg Asp  
 20 25 30  
 Ser Leu Ile Glu Phe Tyr Leu Pro Leu Val Lys Ser Val Val His Arg  
 35 40 45  
 Leu Ile Ser Gly Met Pro Ser His Val Lys Thr Glu Asp Leu Tyr Ala  
 50 55 60  
 Ser Gly Val Glu Gly Leu Val Arg Ala Val Glu Arg Tyr Asn Pro Glu  
 65 70 75 80  
 Arg Ser Arg Arg Phe Glu Gly Tyr Ala Val Phe Leu Ile Lys Ala Ala  
 85 90 95  
 Ile Ile Asp Asp Leu Arg Lys Gln Asp Trp Val Pro Arg Ser Val His

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      100      105      110
Gln Lys Ala Asn Lys Leu Ser Gly Ala Met Asp Ser Leu Arg Gln Ser
      115      120      125
Leu Gly Lys Glu Pro Thr Asp Leu Glu Leu Cys Glu Tyr Leu Asn Ile
      130      135      140
Ser Gln Gln Glu Leu Ser Gly Trp Phe Val Ser Ala Arg Pro Ala Leu
145      150      155      160
Ile Val Ser Leu Asn Glu Glu Trp Pro Ser Gln Ser Asp Glu Gly Ala
      165      170      175
Gly Met Ala Leu Glu Glu Arg Ile Pro Asp Glu Arg Ala Glu Thr Gly
      180      185      190
Tyr Asp Val Val Asp Lys Gln Glu Phe Ser Leu Cys Leu Ala Asn Ala
      195      200      205
Ile Gln Glu Leu Glu Glu Lys Glu Arg Lys Val Met Ala Leu Tyr Tyr
      210      215      220
Tyr Glu Glu Leu Val Leu Lys Glu Ile Gly Lys Val Leu Gly Val Ser
225      230      235      240
Glu Ser Arg Val Ser Gln Ile His Ser Lys Ala Leu Leu Lys Leu Arg
      245      250      255
Ala Asp Ser Leu His Phe Asp Lys Tyr Ser Ser Gln Val Leu Arg Ala
      260      265      270
Val Leu Glu Leu Gly Glu Ala Leu Leu Arg His Arg Val Ile Arg Lys
      275      280      285
Glu Phe Val
      290
<210>380
<211>544
<212>PRT
<213>Chlamydia pneumoniae
<400>380
Phe Cys Ile Val Phe Thr Asn Gly Leu Leu Gly Leu Tyr Leu Lys Phe
  1      5      10      15
Lys Gln Phe Ser Glu Val Phe Pro Pro Phe Phe Leu Tyr Leu Cys Leu
      20      25      30
Leu Arg Leu Gly Leu Asn Leu Ala Ser Thr Arg Trp Ile Val Ser Ser
      35      40      45
Gly Thr Ala Ser Ser Leu Ile Val Ser Leu Gly Ser Phe Phe Ser Leu
      50      55      60
Gly Ser Leu Trp Ala Ala Thr Phe Ala Cys Leu Leu Phe Phe Val
      65      70      75      80
Asn Phe Leu Met Val Ser Lys Gly Ser Glu Arg Ile Ala Glu Val Arg
      85      90      95
Ser Arg Phe Phe Leu Glu Ala Leu Pro Ala Lys Gln Met Ala Leu Asp
      100      105      110
Ser Asp Leu Val Ser Gly Arg Ala Ser Tyr Lys Ala Val Lys Lys Gln
      115      120      125
Lys Asn Ala Leu Ile Glu Glu Gly Asp Phe Phe Ser Ala Met Glu Gly
      130      135      140
Val Phe Arg Phe Val Lys Gly Asp Ala Ile Ile Ser Cys Ile Leu Leu
145      150      155      160
Leu Val Asn Val Val Ser Val Thr Cys Leu Tyr Tyr Thr Ser Gly Tyr
      165      170      175
Ala Leu Glu Gln Met Trp Phe Thr Val Leu Gly Asp Ala Leu Val Ser
      180      185      190
Gln Val Pro Ala Leu Leu Thr Ser Cys Ala Ala Ala Thr Leu Ile Ser
      195      200      205
Lys Ile Asp Lys Glu Glu Ser Leu Leu Asn Tyr Leu Phe Glu Tyr Tyr
      210      215      220
Lys Gln Leu Arg Gln His Phe Arg Val Val Ser Leu Leu Ile Phe Ser
225      230      235      240
Leu Cys Cys Ile Pro Ser Ser Pro Lys Phe Pro Ile Val Leu Leu Ala
      245      250      255
Ser Leu Leu Trp Leu Ala Tyr Arg Lys Glu Glu Pro Ala Ser Glu Asp
      260      265      270

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Ser Cys Ile Glu Arg Ala Phe Ser Tyr Val Glu Gly Ala Cys Pro Lys  
 275 280 285  
 Glu Gln Glu Ser Gln Phe Tyr Gln Val Tyr Arg Ala Ala Ser Glu Glu  
 290 295 300  
 Val Phe Glu Asp Leu Gly Val Arg Leu Pro Val Leu Thr Ser Leu Arg  
 305 310 315 320  
 Ile Glu Glu Arg Pro Trp Leu Arg Val Phe Gly Gln Asn Val Tyr Leu  
 325 330 335  
 Asp Glu Met Thr Pro Glu Ala Val Leu Pro Phe Leu Arg Asn Ile Ala  
 340 345 350  
 His Glu Ala Leu Asn Ala Glu Val Val Gln Lys Tyr Leu Glu Glu Ser  
 355 360 365  
 Glu Arg Val Phe Gly Ile Ala Val Glu Asp Ile Val Pro Lys Lys Ile  
 370 375 380  
 Ser Leu Ser Ser Leu Val Val Leu Ser Arg Leu Leu Val Arg Glu Arg  
 385 390 395 400  
 Val Ser Leu Lys Leu Xaa Pro Lys Ile Leu Glu Ala Val Ala Val Tyr  
 405 410 415  
 Gln Asn Ser Gly Asp Ser Leu Glu Ile Leu Ala Glu Lys Val Arg Lys  
 420 425 430  
 Ser Leu Gly Tyr Trp Ile Gly Arg Ser Leu Trp Asp Gln Lys Gln Thr  
 435 440 445  
 Leu Glu Val Ile Thr Ile Asp Phe His Val Glu Glu Leu Ile Asn Ser  
 450 455 460  
 Ser Tyr Ser Lys Ser Asn Pro Val Met Gln Glu Asn Val Ile Arg Arg  
 465 470 475 480  
 Val Asp Ser Leu Leu Glu Arg Ser Val Phe Lys Asp Phe Arg Ala Ile  
 485 490 495  
 Val Thr Ser Cys Glu Thr Arg Phe Glu Met Lys Lys Met Leu Asp Pro  
 500 505 510  
 His Phe Pro Asp Leu Leu Val Leu Ser His Asp Glu Leu Pro Lys Glu  
 515 520 525  
 Ile Pro Ile Ser Phe Leu Gly Ile Val Ser Asp Glu Val Leu Val Pro  
 530 535 540

&lt;210&gt;381

&lt;211&gt;91

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;381

Met Ala Lys Leu Val Ile Thr Ser Asp Asp Glu Gln Gln Glu Phe Glu  
 1 5 10 15  
 Leu Glu Asp Asn Ser Glu Ile Ala Glu Pro Cys Glu Ser Met Gly Ile  
 20 25 30  
 Pro Phe Ala Cys Thr Glu Gly Val Cys Gly Thr Cys Val Ile Glu Val  
 35 40 45  
 Leu Glu Gly Arg Glu Asn Leu Ser Glu Phe Thr Glu Pro Glu Tyr Asp  
 50 55 60  
 Phe Leu Gly Glu Pro Glu Asp Ser Asn Glu Arg Leu Ala Cys Gln Cys  
 65 70 75 80  
 Arg Ile Lys Gly Gly Cys Val Lys Val Thr Phe  
 85 90

&lt;210&gt;382

&lt;211&gt;191

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;382

Phe Lys Gly Thr Gln Val Asn Ser Leu Ile Met Ala Thr Ile Ser Pro  
 1 5 10 15  
 Ile Ser Leu Thr Val Asp His Pro Leu Val Asp Thr Lys Lys Ser  
 20 25 30  
 Cys Ser Asn Phe Asp Lys Ile Gln Ser Arg Ile Leu Leu Ile Thr Ala  
 35 40 45  
 Ile Phe Ala Val Leu Val Thr Ile Gly Thr Leu Leu Ile Gly Leu Leu  
 50 55 60

Leu Asn Ile Pro Val Ile Tyr Phe Leu Thr Gly Ile Ser Phe Ile Ala  
 65 70 75 80  
 Val Val Leu Ser Asn Phe Ile Leu Tyr Lys Arg Ala Thr Thr Leu Leu  
 85 90 95  
 Lys Pro Arg Ala Cys Gly Lys His Lys Glu Ile Lys Pro Lys Arg Val  
 100 105 110  
 Ser Thr Asn Leu Gln Tyr Ser Ser Ile Ser Ile Ala Ile Asn Arg Ser  
 115 120 125  
 Lys Glu Asn Trp Glu His Gln Pro Lys Asp Leu Gln Asn Leu Pro Ala  
 130 135 140  
 Pro Ser Ala Leu Leu Thr Asp Asn Pro Tyr Glu Ile Trp Lys Ala Lys  
 145 150 155 160  
 His Ser Leu Phe Ser Leu Val Ser Leu Leu Pro Gly Gly Asn Pro Lys  
 165 170 175  
 Thr Ser Leu Lys Phe Lys Leu Pro Lys Ile Tyr Glu Arg Leu Cys  
 180 185 190

&lt;210&gt;383

&lt;211&gt;158

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;383

Leu Lys Lys Pro Arg Lys Met Arg Leu Tyr Pro Pro Tyr Val Asp Thr  
 1 5 10 15  
 Thr Pro Ser Pro Lys Ser Leu Leu Asn Glu Ala Ile Gln Glu Thr Arg  
 20 25 30  
 Val Glu Ile Asn Thr Glu Leu Pro Ala Gly Asp Ser Gly Glu Arg Leu  
 35 40 45  
 Tyr Trp Gln Pro Asp Phe Arg Gly Arg Val Phe Leu Pro Gln Ile Pro  
 50 55 60  
 Thr Thr Pro Glu Ala Ile Tyr Gln Tyr Tyr Tyr Ala Leu Tyr Val Thr  
 65 70 75 80  
 Tyr Ile Gln Thr Ala Ile Asn Thr Asn Thr Gln Ile Ile Gln Ile Pro  
 85 90 95  
 Leu Tyr Ser Leu Arg Glu His Leu Tyr Ser Arg Glu Leu Pro Pro Gln  
 100 105 110  
 Ser Arg Met Gln Gln Ser Leu Ala Met Ile Thr Ala Val Lys Tyr Met  
 115 120 125  
 Ala Glu Leu His Pro Glu Tyr Pro Leu Thr Ile Ala Cys Val Glu Arg  
 130 135 140  
 Ser Leu Ala Gln Leu Pro Gln Glu Ser Ile Glu Asp Leu Ser  
 145 150 155

&lt;210&gt;384

&lt;211&gt;155

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;384

Met Gly Tyr Leu Pro Val Ser Ala Thr Asp Val Leu Phe Glu Ser Pro  
 1 5 10 15  
 Ala Ala Pro Leu Ile Asn Ser Ala Asn Thr Gln Asn Gln Lys Leu Ile  
 20 25 30  
 Glu Leu Lys Gly Lys Gln Gln Ala Glu Ser Ser Pro Arg Thr Ile Thr  
 35 40 45  
 Ser Val Ile Leu Glu Val Leu Leu Val Ile Gly Cys Cys Leu Ile Val  
 50 55 60  
 Leu Ser Leu Leu Ala Ile Arg Pro Ala Leu Gln Phe Thr Leu Glu Thr  
 65 70 75 80  
 Gly His Pro Ala Ala Ile Ala Val Leu Ala Val Ser Gly Thr Ile Leu  
 85 90 95  
 Leu Val Ala Val Ile Ile Leu Phe Cys Phe Leu Ala Ala Val Pro Phe  
 100 105 110  
 Ala Ala Lys Lys Thr Tyr Lys Tyr Val Lys Thr Val Asp Asp Tyr Ala  
 115 120 125  
 Ser Trp His Ser His Gln Gln Thr Pro Thr Leu Gly Thr Ile Phe Ser  
 130 135 140

Gly Ile Val Tyr Ala Glu Ser Gln Ala Gln Leu  
145 150 155

<210>385

<211>253

<212>PRT

<213>Chlamydia pneumoniae

<400>385

Ser Phe Pro Leu Asn Arg Tyr Phe Met Thr Lys Thr Thr Ser Ile Pro  
1 5 10 15  
Asp Val His Glu Asn Gln Ser His Leu Ser Val Asp Glu Arg Leu Ile  
20 25 30  
Ser Glu Ser Pro Val Leu Thr Lys Lys Glu Val Ile Ala Lys Ile Ile  
35 40 45  
Lys Leu Thr Ala Leu Ile Leu Ala Leu Ala Ile Ala Val Gly Thr Ala  
50 55 60  
Val Val Ala Gly Val Leu Gly Met Pro Leu Met Ala Ile Ala Thr Gly  
65 70 75 80  
Ala Ala Leu Leu Ala Ala Val Val Leu Ser Cys Leu Leu Leu Arg Arg  
85 90 95  
Arg Glu Pro Ser Lys Pro Thr Glu Glu Leu Leu Gly Pro Gln Lys His  
100 105 110  
Val Pro Lys Asp Ile Ala Ala Gln Val Gln Pro Ser Val Pro Leu Asp  
115 120 125  
Tyr Gln Lys Leu Leu Arg Asn Glu Trp Thr Leu Val Asn Thr Leu Ser  
130 135 140  
Glu Ile Asn Ile Ser Trp Thr Leu Gln Asp Pro Asn Gln Arg Tyr Tyr  
145 150 155 160  
Val Trp Glu His Gln Gly Ala Pro Ile Thr Leu Val Ala Thr Thr Gly  
165 170 175  
Asp Ile Ala Lys Pro Arg Leu Lys Thr Ser Gly Arg Val Met Ile Val  
180 185 190  
Asn Ala Ala Asn Ser Asn Met Gln Ser Gly Gly Ala Gly Thr Asn Ala  
195 200 205  
Ala Leu Ser Ala Ala Thr His Pro Thr Cys Trp Asn Asn Thr Arg Thr  
210 215 220  
Ser Gly Gly Lys Ile Asn Thr Gly Lys Gly Leu Ser Val Gly Glu Cys  
225 230 235 240  
Arg Ser Ala Pro Trp Ile Asn Arg Asp Trp Thr Asn Lys  
245 250

<210>386

<211>114

<212>PRT

<213>Chlamydia pneumoniae

<400>386

Thr Leu Ala Lys Asp Tyr Leu Trp Val Asn Ala Ala Gln His Pro Gly  
1 5 10 15  
Ser Ile Glu Thr Gly Arg Ile Asn Asp Thr Asn Pro Gly Glu Ala His  
20 25 30  
Phe Leu Ala Gln Leu Leu Gly Pro Lys Tyr Glu Gly Glu Leu Lys Ala  
35 40 45  
His Pro Glu Lys Leu Ser Asn Val Ile Lys Lys Ala Tyr Leu Asn Cys  
50 55 60  
Phe Asp Glu Ala Leu Asn Asn Gln Ala Thr Val Val Gln Val Pro Leu  
65 70 75 80  
Ile Ser Ser Ser Ile Tyr Ser Pro Gly Gly Lys Leu Glu Leu Glu Pro  
85 90 95  
Val Asn Gln Thr Lys Pro Asn Ser Ser Ala Tyr Lys Leu Tyr His Ile  
100 105 110  
Arg Thr

<210>387

<211>406

<212>PRT

<213>Chlamydia pneumoniae

&lt;400&gt;387

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Asn Ile Met Thr Asp Ser Asn Pro Leu Pro Ser Tyr Thr Asp Ala Ser
 1           5           10           15
Leu Tyr Arg Thr Pro Ala Lys His Ser Tyr Pro Ile Arg Leu Pro Leu
           20           25           30
Asn Arg Thr Asp Arg Ile Glu Lys Ile Leu Lys Ile Val Thr Leu Thr
           35           40           45
Leu Ala Leu Ala Cys Ala Leu Gly Phe Ser Ile Ala Ala Gly Ile Leu
           50           55           60
Ala Met Pro Ile Phe Ser Ala Val Val Val Ile Thr Leu Ala Ile Ala
           65           70           75           80
Ala Val Ser Leu Tyr Ser Leu Leu Lys Lys Pro Lys Leu Tyr Glu Ile
           85           90           95
Leu Pro Gln Ile Glu Pro Glu Ser Glu Gln Ser Ser Leu Ser Pro Ser
           100          105          110
Pro Gln Pro Pro Glu Gln Gln Asp Leu Pro Leu Gln Ile Asp Pro Leu
           115          120          125
Pro Asp Pro Glu Ser Leu Pro Glu Val Ser Leu Ala Asp Leu Thr Thr
           130          135          140
Pro Pro Glu Glu Leu Thr Ala Ile Thr Val Thr Pro Gly Tyr Glu Ala
           145          150          155          160
Leu Leu Glu Gln Asn Trp Asp Leu Leu Pro Ser Leu Ala Ala Val Asp
           165          170          175
Pro Ser Phe Thr Thr Glu Thr Pro Gln Gln Pro Cys Phe Ile Trp Lys
           180          185          190
Leu Lys Asp Ser Lys Leu Ile Phe Ile Ser Thr Ser Gly Asp Ile Ala
           195          200          205
Val Pro Arg Ile Lys Thr Gln Gly Arg Val Met Ile Val Asn Ala Ala
           210          215          220
Asn Glu Asn Ile Ser Arg Glu Gly Gly Gly Thr Asn Lys Ala Leu Ser
           225          230          235          240
Leu Ala Thr Ser Leu Gln Cys Trp Asn Ala Ser Arg Leu Pro Arg Ala
           245          250          255
His Ser Arg Ser Gly Ser Gln Leu Gln Pro Gly Glu Cys Arg Ser Ala
           260          265          270
Lys Trp Glu Asn Ser Asp His Thr Ser Asn Asp His Val Pro Gly Lys
           275          280          285
Ala His Phe Leu Ala Gln Leu Leu Gly Pro Glu Ala Ala Lys Cys Asn
           290          295          300
Asn Asp Pro Lys Gln Ala Phe Glu Val Ser Lys Lys Ala Phe His Asn
           305          310          315          320
Leu Phe Gln Glu Ala Glu Ile Ile Gly Val Asp Val Ile Gln Leu Pro
           325          330          335
Leu Ile Gly Cys Asn Leu Phe Ala Pro Ser Arg Leu Leu Asn Leu Gly
           340          345          350
Lys Thr Arg Ala Glu Trp Ile Glu Ala Ile Lys Leu Ala Leu Ile Thr
           355          360          365
Ser Leu Gln Asp Phe Gly Trp Glu Gln Asp Asn Gln Glu Glu Gln Lys
           370          375          380
Ile Ile Ile Leu Thr Asp Lys Asp Gln Pro Pro Ile Ile Pro Pro Arg
           385          390          395          400
Phe Asp Leu Thr Thr Pro
           405

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&lt;210&gt;388

&lt;211&gt;386

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;388

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Lys Arg Ile Phe Phe Lys Leu Phe Val Phe Tyr Leu Lys Ser Phe Met
 1           5           10           15
Ser Thr Thr Glu Pro Asn Leu Thr Asn Val Asn Leu Thr Met Leu Ile
           20           25           30
Ser Ser Glu Ser Met Pro Thr Gln Leu Ala Ser His Lys Leu Lys Gly
           35           40           45

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Leu Asp Leu Val Ala Phe Ile Leu Ile Ile Gly Ile Ala Val Ser Ser  
 50 55 60  
 Gly Thr Ala Ala Ile Ile Leu Gly Ile Pro Leu Leu Phe Ile Leu Thr  
 65 70 75 80  
 Ala Leu Ala Val Leu Ala Phe Ser Ile Leu Leu Tyr Phe Leu Leu Arg  
 85 90 95  
 Glu Pro Lys Ser Pro Ile Ser Val Thr His Gln Pro Thr Pro Ile Ile  
 100 105 110  
 Lys Asp Thr Asp Leu Pro Pro Val Pro Pro Leu Ala Leu Thr Pro Val  
 115 120 125  
 Pro Thr Glu Ala Val Leu Glu Glu Pro Pro Leu Pro Ser Pro Arg Thr  
 130 135 140  
 His Gln Thr Leu Leu Gln Glu Asn Trp Asp Arg Ile Pro Asp Leu Gln  
 145 150 155 160  
 Ala Asn Thr Asp Met Pro Phe Ile Ala Ala Asp Asn Gln Thr Gly Tyr  
 165 170 175  
 Ala Trp His Leu Lys Asn Ser Asn Leu Thr Leu Ile Ser Thr Leu Gly  
 180 185 190  
 Pro Ile Glu Lys Pro Arg Tyr Lys Thr Gln Gly Ile Val Met Ile Val  
 195 200 205  
 Asn Ala Ala Thr Pro Asn Met Ala Asn Asn Val Lys Gly Thr Ser Leu  
 210 215 220  
 Ala Leu Ala Lys Ala Thr Ser Val Arg Cys Trp Glu Asn Ser Lys Lys  
 225 230 235 240  
 Ser Pro Asp Pro Leu Arg Ser Lys Gln Pro Leu Gln Leu Gly Glu Cys  
 245 250 255  
 Arg Ser Ala Lys Trp Glu Asn Leu Asn Gly Thr Thr Asn Ala Gly Lys  
 260 265 270  
 Ala Gly Leu Pro Gln Phe Leu Gly Gln Leu Leu Gly Pro Lys Ala Ser  
 275 280 285  
 Asp Tyr Asn Tyr Asn Pro Asn Asp Ala Phe Thr Phe Cys Arg Gln Ala  
 290 295 300  
 Tyr Leu Asn Cys Leu Asn Glu Ala Lys Arg Arg Lys Thr Thr Val Val  
 305 310 315 320  
 Gln Leu Pro Leu Leu Ser Ser His Phe Pro Gly Ser Pro Lys Asp Glu  
 325 330 335  
 Glu Thr Thr Ser Leu Arg Leu Gln Trp Ile Asp Gly Val Lys Leu Ala  
 340 345 350  
 Leu Ile Asp Ala Leu Gln Thr Phe Gly Ser Glu Ala Glu Asn Gln Asn  
 355 360 365  
 Gln Pro Trp Val Ile Ile Leu Thr Thr Leu Ala Arg His Pro Leu Ile  
 370 375 380  
 Thr Pro  
 385  
 <210>389  
 <211>621  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>389  
 Asn Ser Glu Ile Phe Glu Ile Phe Met Thr Leu Ile Thr Pro Ala Ile  
 1 5 10 15  
 Asn Ser Ser Arg Arg Lys Thr His Thr Val Arg Ile Gly Asn Leu Tyr  
 20 25 30  
 Ile Gly Ser Asp His Ser Ile Lys Thr Gln Ser Met Thr Thr Leu  
 35 40 45  
 Thr Thr Asp Ile Asp Ser Thr Val Glu Gln Ile Tyr Ala Leu Ala Glu  
 50 55 60  
 His Asn Cys Asp Ile Val Arg Val Thr Val Gln Gly Ile Lys Glu Ala  
 65 70 75 80  
 Gln Ala Cys Glu Lys Ile Lys Glu Arg Leu Ile Ala Leu Gly Leu Asn  
 85 90 95  
 Ile Pro Leu Val Ala Asp Ile His Phe Phe Pro Gln Ala Ala Met Leu  
 100 105 110  
 Val Ala Asp Phe Ala Asp Lys Val Arg Ile Asn Pro Gly Asn Tyr Ile

|                         |                         |                     |
|-------------------------|-------------------------|---------------------|
| 115                     | 120                     | 125                 |
| Asp Lys Arg Asn Met Phe | Lys Gly Thr Lys Ile Tyr | Thr Glu Ala Ser     |
| 130                     | 135                     | 140                 |
| Tyr Ala Gln Ser Leu     | Leu Arg Leu Glu Glu Lys | Phe Ala Pro Leu Val |
| 145                     | 150                     | 155                 |
| Glu Lys Cys Lys Arg     | Leu Gly Lys Ala Met Arg | Ile Gly Val Asn His |
| 165                     | 170                     | 175                 |
| Gly Ser Leu Ser Glu     | Arg Ile Met Gln Lys Tyr | Gly Asp Thr Ile Glu |
| 180                     | 185                     | 190                 |
| Gly Met Val Ala Ser     | Ala Ile Glu Tyr Ile Ala | Val Cys Glu Lys Leu |
| 195                     | 200                     | 205                 |
| Asn Tyr Arg Asp Val     | Val Phe Ser Met Lys Ser | Ser Asn Pro Lys Ile |
| 210                     | 215                     | 220                 |
| Met Val Thr Ala Tyr     | Arg Gln Leu Ala Lys Asp | Leu Asp Ala Arg Gly |
| 225                     | 230                     | 235                 |
| Trp Leu Tyr Pro Leu     | His Leu Gly Val Thr Glu | Ala Gly Met Gly Val |
| 245                     | 250                     | 255                 |
| Asp Gly Ile Ile Lys     | Ser Ala Val Gly Ile Gly | Thr Leu Leu Ala Glu |
| 260                     | 265                     | 270                 |
| Gly Leu Gly Asp Thr     | Ile Arg Cys Ser Leu Thr | Gly Cys Pro Thr Thr |
| 275                     | 280                     | 285                 |
| Glu Ile Pro Val Cys     | Asp Ser Leu Leu Arg His | Thr Lys Ile Tyr Leu |
| 290                     | 295                     | 300                 |
| Asp Leu Pro Glu Lys     | Lys Asn Pro Phe Ser Leu | Gln His Ser Glu Asn |
| 305                     | 310                     | 315                 |
| Phe Val Ser Ala Ala     | Glu Lys Pro Ala Lys Thr | Thr Leu Trp Gly Asp |
| 325                     | 330                     | 335                 |
| Val Tyr Gly Val Phe     | Leu Lys Leu Tyr Pro His | His Leu Thr Asp Phe |
| 340                     | 345                     | 350                 |
| Thr Pro Glu Glu Leu     | Leu Glu His Leu Gly Val | Asn Pro Val Thr Lys |
| 355                     | 360                     | 365                 |
| Glu Lys Ala Phe Thr     | Thr Pro Glu Gly Val Val | Val Pro Pro Glu Leu |
| 370                     | 375                     | 380                 |
| Lys Asp Ala Pro Ile     | Thr Asp Val Leu Arg Glu | His Phe Leu Val Phe |
| 385                     | 390                     | 395                 |
| His His His Gln Val     | Pro Cys Leu Tyr Glu His | Asn Glu Glu Ile Trp |
| 405                     | 410                     | 415                 |
| Asp Ser Pro Ala Val     | His Gln Ala Pro Phe Val | His Phe His Ala Ser |
| 420                     | 425                     | 430                 |
| Asp Pro Phe Ile His     | Thr Ser Arg Asp Phe Phe | Glu Lys Gln Gly His |
| 435                     | 440                     | 445                 |
| Gln Gly Lys Pro Thr     | Lys Leu Val Phe Ser Arg | Asp Phe Asp Asn Lys |
| 450                     | 455                     | 460                 |
| Glu Glu Ala Ala Ile     | Ser Ile Ala Thr Glu Phe | Gly Ala Leu Leu Leu |
| 465                     | 470                     | 475                 |
| Asp Gly Leu Gly Glu     | Ala Val Val Leu Asp Leu | Pro Asn Leu Pro Leu |
| 485                     | 490                     | 495                 |
| Gln Asp Val Leu Lys     | Ile Ala Phe Gly Thr Leu | Gln Asn Ala Gly Val |
| 500                     | 505                     | 510                 |
| Arg Leu Val Lys Thr     | Glu Tyr Ile Ser Cys Pro | Met Cys Gly Arg Thr |
| 515                     | 520                     | 525                 |
| Leu Phe Asp Leu Glu     | Glu Val Thr Thr Arg Ile | Arg Lys Arg Thr Gln |
| 530                     | 535                     | 540                 |
| His Leu Pro Gly Leu     | Lys Ile Ala Ile Met Gly | Cys Ile Val Asn Gly |
| 545                     | 550                     | 555                 |
| Pro Gly Glu Met Ala     | Asp Ala Asp Phe Gly Phe | Val Gly Ser Lys Thr |
| 565                     | 570                     | 575                 |
| Gly Met Ile Asp Leu     | Tyr Val Lys His Thr Cys | Val Lys Ala His Ile |
| 580                     | 585                     | 590                 |
| Pro Met Glu Asp Ala     | Glu Glu Glu Leu Ile Arg | Leu Leu Gln Glu His |
| 595                     | 600                     | 605                 |
| Gly Val Trp Lys Asp     | Pro Glu Glu Thr Lys Leu | Thr Val             |
| 610                     | 615                     | 620                 |

<210>390

&lt;211&gt;251

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;390

Val Asp Ser Met Thr Leu Ser Phe His Thr His Pro Leu Asn Tyr Trp  
 1 5 10 15  
 Thr Phe Glu Glu Phe Asp Gly Leu Pro Ile Arg His Gly Val Phe Ser  
 20 25 30  
 Lys Gln Lys Asp Ala Glu Gly Thr Val Phe Ala Ala Lys Asn Pro Glu  
 35 40 45  
 Ile Ala Ser Ala Leu Gln Ser Pro Lys Tyr Cys Asp Leu His Gln Arg  
 50 55 60  
 His Gly Thr Ser Val Arg Cys Val Thr Pro Thr Ser Pro Thr Tyr Gln  
 65 70 75 80  
 Pro Ala Asp Gly Leu Cys Thr Gln Ser Pro Leu Leu Ser Leu His Ile  
 85 90 95  
 Arg His Ser Asp Cys Gln Ala Ala Ile Phe Tyr Asp Arg Glu His His  
 100 105 110  
 Ala Ile Ala Asn Val His Ser Gly Trp Arg Gly Leu Leu Gly Asn Ile  
 115 120 125  
 Tyr Ala Val Thr Val Gly Thr Met Lys Lys Leu Phe His Thr Lys Pro  
 130 135 140  
 Gln Asp Leu Phe Val Ala Ile Gly Pro Ser Ile Gly Pro Asp Tyr Ala  
 145 150 155 160  
 Ile Tyr Pro Asp Tyr Ala Thr Leu Phe Pro Arg Ser Phe Leu Pro Phe  
 165 170 175  
 Met Asn Pro Lys Asn His Phe Asp Leu Arg Ala Ile Ala Arg Lys Gln  
 180 185 190  
 Leu Thr Asn Leu Gly Ile Ser Lys Asp Arg Ile Phe Ile Ser Asp Leu  
 195 200 205  
 Cys Thr Tyr Thr Glu His Asp Ala Phe Phe Ser Ser Arg Tyr Leu Ala  
 210 215 220  
 His His Pro Asp Pro Asn Leu Thr Gly Gln His Ser Lys Asn Arg Asn  
 225 230 235 240  
 Asn Val Thr Ala Val Leu Leu Leu Pro Arg Asp  
 245 250

&lt;210&gt;391

&lt;211&gt;168

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;391

Arg Leu Ser Met Lys Leu Gly Ala Ser Thr Asn His Lys Val His Glu  
 1 5 10 15  
 Pro Val Lys Pro Lys Lys Ala Lys Leu Ala Glu Ile Glu Ala Xaa Lys  
 20 25 30  
 Thr Gln Ala Thr Glu Gly Thr Leu Arg Ser Lys Ser Leu Ala Leu Gln  
 35 40 45  
 Ile Ala Arg Ala Val Leu Tyr Ile Leu Phe Ala Ala Leu Met Leu Ala  
 50 55 60  
 Ala Gly Ile Thr Phe Val Thr Phe Glu Ala Leu Gly Phe Pro Leu Ile  
 65 70 75 80  
 Gln Ala Tyr Ser Ile Ala Gly Ile Ile Thr Leu Val Gly Leu Ala Ile  
 85 90 95  
 Gly Leu Val Leu Leu Ile Leu Ser Leu Leu Pro Lys Glu Asp Glu Glu  
 100 105 110  
 Ala Asp Ala Leu Ser Arg Asn Ala Leu Leu Pro Leu Thr Ile Ile Val  
 115 120 125  
 Ile Glu Gln Gln Pro Ile Thr Pro Lys Pro Glu Ile Pro Tyr Ser Tyr  
 130 135 140  
 Leu Thr Lys Leu Ala Leu Leu Thr Ser Leu Phe Leu Thr Leu Arg Arg  
 145 150 155 160  
 Ser Ser Ser Gln Arg Lys Thr His  
 165

&lt;210&gt;392

&lt;211&gt;205

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;392

Phe Lys Val Val Thr Ala Lys Ala Pro Asn Leu Thr Glu Ile Arg Asp  
 1 5 10 15  
 His Gly Ala Arg Val Pro Ser Leu Phe Leu Leu Ser Pro Glu Thr Ser  
 20 25 30  
 His Trp Lys Lys Gly Asp Lys Glu Val Ser Ala Pro Leu Lys Gln Leu Gln  
 35 40 45  
 Asp Leu Leu Gly Glu Glu Gln Trp Glu Ala Met Lys Thr Lys Met Asn  
 50 55 60  
 Ser Arg Lys Lys Ala Gly Gln Trp Ala Ile Phe Asn Ser Pro Thr Pro  
 65 70 75 80  
 Gly Val Ser Ser Thr Leu Val Leu Ala Trp Thr Pro Trp Gly Tyr Tyr  
 85 90 95  
 Asp Lys Asp Val Gln Asp Ile Leu Glu Arg Lys Asp Pro Met Ser Ser  
 100 105 110  
 Ser Leu Ser Glu Lys Asp Ser Lys Glu Phe Leu Lys Asn Leu Phe Val  
 115 120 125  
 Asp Leu Leu Glu Asn Gly Phe Thr Ser Val His Ile His Ala Glu Glu  
 130 135 140  
 Ala Phe Thr Pro Leu Asp His Thr Gly Lys Pro His Phe Lys Arg Asp  
 145 150 155 160  
 Asn Val Tyr Leu Pro Gly Lys Leu Leu Gly Ala Leu Asn Glu Ala Ala  
 165 170 175  
 Val Gln Ala Asn Val Ser Ala Asp Thr Gln Phe Thr Leu Phe Leu Thr  
 180 185 190  
 Gln Asp Glu Cys Asn Pro Phe His Asp Lys Lys Arg Gly  
 195 200 205

&lt;210&gt;393

&lt;211&gt;147

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;393

Trp Arg Gly Asp Cys Tyr Arg His Tyr Tyr Asp Ile Ser Ile Ala Val  
 1 5 10 15  
 Gly Ile Asp Arg Gly Leu Val Val Pro Val Ile Arg Asp Cys Asp Lys  
 20 25 30  
 Leu Ser Asn Gly Glu Ile Glu Gln Lys Leu Ala Asp Leu Ser Leu Arg  
 35 40 45  
 Ala Arg Glu Gly Leu Leu Ala Ile Ala Glu Leu Glu Gly Gly Gly Phe  
 50 55 60  
 Thr Ile Thr Asn Gly Gly Val Tyr Gly Ser Leu Leu Ser Thr Pro Ile  
 65 70 75 80  
 Ile Asn Pro Pro Gln Val Gly Ile Leu Gly Met His Lys Ile Glu Lys  
 85 90 95  
 Arg Pro Val Val Leu Asp Asn Glu Ile Val Ile Ala Asp Met Met Tyr  
 100 105 110  
 Val Ala Leu Ser Tyr Asp His Arg Leu Ile Asp Gly Lys Glu Ala Val  
 115 120 125  
 Gly Phe Leu Val Lys Val Lys Glu Gly Leu Glu Asn Pro Ala Ser Leu  
 130 135 140  
 Leu Asp Leu  
 145

&lt;210&gt;394

&lt;211&gt;233

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;394

Ile Met Thr Thr Glu Val Arg Ile Pro Asn Ile Ala Glu Ser Ile Ser  
 1 5 10 15  
 Glu Val Thr Val Ala Ser Leu Leu Val Thr Glu Gly Ala Leu Ile Gln  
 20 25 30



Glu Asn Gln Gly Leu Leu Glu Ile Glu Ser Asp Lys Val Asn Gln Leu  
 35 40 45  
 Ile Tyr Ala Pro Val Ser Gly Arg Ile Phe Trp Glu Val Ser Glu Gly  
 50 55 60  
 Asp Val Val Pro Val Gly Gly Val Val Gly Lys Ile Glu Pro Ala Gly  
 65 70 75 80  
 Glu Gly Glu Glu Leu Gly Asp Ser Gln Ser Lys Glu Thr Ile Glu Ala  
 85 90 95  
 Glu Ile Ile Cys Phe Pro Gln Ser Gly Val Arg Gln Ser Pro Pro Glu  
 100 105 110  
 Asn Lys Thr Phe Ile Pro Leu Arg Asp Gln Met Asp Gln Gly Ser Gln  
 115 120 125  
 Gly Leu Ser Ala Gly Asp Arg Gly Glu Thr Arg Glu Arg Met Thr Ser  
 130 135 140  
 Ile Arg Lys Thr Ile Ser Arg Arg Leu Leu Ser Ala Leu His Glu Ser  
 145 150 155 160  
 Ala Met Leu Thr Thr Phe Asn Glu Val Tyr Met Thr Pro Leu Phe His  
 165 170 175  
 Leu Arg Lys Glu Lys Gln Glu Glu Phe Leu Ser Arg Tyr Gly Val Lys  
 180 185 190  
 Leu Gly Phe Met Ser Phe Phe Val Lys Ala Val Leu Glu Ala Leu Lys  
 195 200 205  
 Ala Tyr Pro Arg Val Asn Ala Tyr Ile Asp Gly Glu Glu Ile Val Thr  
 210 215 220  
 Val Thr Ile Met Thr Phe Leu Leu Leu  
 225 230

&lt;210&gt;395

&lt;211&gt;915

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;395

Ile Val Phe Ile Glu Phe Asn Tyr Phe Met Asp Ser Glu Phe Val Gly  
 1 5 10 15  
 Gln Val Tyr Ser Ser Asp Met Asp Trp Ile Glu Ser Met Tyr Gln Arg  
 20 25 30  
 Phe Met Asn His Glu Thr Leu Asp Pro Ser Trp Lys Tyr Phe Phe Glu  
 35 40 45  
 Gly Tyr Gln Leu Gly Gln Ala Ala Ser Pro Ser Glu Ala Ser Thr Lys  
 50 55 60  
 Ile Ser Gly Asn Glu Thr Ile Ala Met Leu Gln Glu Gln Lys Ser Gln  
 65 70 75 80  
 Phe Leu Cys Thr Ile Tyr Arg Tyr Tyr Gly Tyr Leu Gln Ser Gln Ile  
 85 90 95  
 Ser Thr Leu Ala Pro Thr Thr Asp Ser Arg Phe Ile Gln Glu Lys Ile  
 100 105 110  
 Ala Lys Ile Asp Leu Asp Glu Gln Val Pro Ser Ala Gly Leu Leu Pro  
 115 120 125  
 Lys Ala Gln Val Ser Val Arg Glu Leu Ile Glu Ala Leu Lys Lys Cys  
 130 135 140  
 Tyr Cys Gly Ser Leu Thr Leu Glu Thr Leu Thr Cys Thr Pro Glu Leu  
 145 150 155 160  
 Gln Glu Phe Val Trp Asn Leu Met Glu Lys Arg Gln Val Glu Arg Phe  
 165 170 175  
 Ala Glu Gln Leu Leu Arg Ser Tyr Lys Asp Leu Cys Lys Ala Thr Phe  
 180 185 190  
 Phe Glu Glu Phe Leu Gln Ile Lys Phe Thr Gly Gln Lys Arg Phe Ser  
 195 200 205  
 Leu Glu Gly Gly Glu Thr Leu Val Pro Met Leu Glu His Leu Val His  
 210 215 220  
 Tyr Gly Ser Ala Leu Gly Ile Ser Asn Tyr Val Leu Gly Met Ala His  
 225 230 235 240  
 Arg Gly Arg Leu Asn Val Leu Thr Asn Val Leu Gly Lys Pro Tyr Arg  
 245 250 255  
 Tyr Val Phe Met Glu Phe Glu Asp Asp Pro Ala Ala Arg Gly Leu Glu

600

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      770      775      780
Gly Gly Phe Arg Ala Ile Leu Glu Asp Ala Asp Pro Asn Tyr Asp Ala
785      790      795      800
Ser Ile Leu Val Leu Cys Ser Gly Lys Ile Tyr Tyr Asp Tyr Ala Glu
      805      810      815
Met Leu Pro Gln Asp Arg Arg Lys Asp Phe Ser Cys Leu Arg Ile Glu
      820      825      830
Ser Leu Tyr Pro Leu Ala Leu Glu Asp Leu Val Ser Leu Ile Asp Lys
      835      840      845
Tyr Ser His Leu Lys His Phe Val Trp Leu Gln Glu Glu Ser Lys Asn
      850      855      860
Met Gly Ala Tyr Asp Tyr Met Phe Met Ala Leu Gln Asp Ile Leu Pro
865      870      875      880
Glu Lys Leu Leu Tyr Ile Gly Arg Pro Arg Ser Ser Ser Thr Ala Ser
      885      890      895
Gly Ser Ala Lys Ser Val Val Lys Ser Trp Ser Arg Val Trp Lys Pro
      900      905      910
Ser Phe Leu
      915
<210>396
<211>394
<212>PRT
<213>Chlamydia pneumoniae
<400>396
Met Lys Thr Leu Ser Ala Ile Ala Ile Ala Gly Asp Ala Val Val Ser
1      5      10      15
Leu Ile Pro Met Leu Met Asn Gly Lys Ala Pro Leu Ala Leu Tyr Ile
      20      25      30
His Ile Pro Phe Cys Thr Lys Lys Cys Arg Tyr Cys Ser Phe Tyr Thr
      35      40      45
Ile Pro Tyr Lys Ser Glu Ser Val Ser Leu Tyr Cys Asn Ala Val Ile
      50      55      60
Gln Glu Gly Leu Arg Lys Leu Ala Pro Ile Gln Glu Thr His Phe Ile
      65      70      75      80
Glu Thr Val Phe Phe Gly Gly Gly Thr Pro Ser Leu Val Ser Pro Leu
      85      90      95
Asp Leu Lys Arg Ile Leu Lys Glu Leu Ala Pro His Ala Arg Glu Ile
      100      105      110
Thr Leu Glu Ala Asn Pro Glu Asn Leu Thr Val Ser Tyr Leu Arg Gln
      115      120      125
Leu Gln Glu Thr Pro Ile Asn Arg Ile Ser Val Gly Val Gln Thr Phe
      130      135      140
Asp Asp Ser Ile Leu Gln Leu Leu Gly Arg Thr His Ser Ser Ser Ala
145      150      155      160
Ala Ile Thr Ala Leu Gln Glu Cys Gln Asn His Gly Phe Ser Asn Leu
      165      170      175
Ser Ile Asp Leu Ile Tyr Gly Leu Pro Thr Gln Ser Leu Glu Ile Phe
      180      185      190
Leu Ser Asp Leu His Gln Ala Leu Thr Leu Pro Ile Thr His Ile Ser
      195      200      205
Leu Tyr Asn Leu Thr Ile Asp Pro His Thr Ser Phe Tyr Lys His Arg
      210      215      220
Lys Ile Leu Val Pro Thr Ile Ala Gln Glu Glu Ile Leu Ala Glu Met
225      230      235      240
Ser Leu Leu Ala Glu Asn Leu Leu Leu Ser Gln Gly Phe Gln Arg Tyr
      245      250      255
Glu Leu Ala Ser Tyr Ala Lys Pro Asp Tyr Pro Ala Lys His Asn Leu
      260      265      270
Tyr Tyr Trp Thr Asp Arg Pro Phe Leu Gly Leu Gly Val Ser Ala Ser
      275      280      285
Gln Tyr Leu His Gly Glu Arg Ser Lys Asn Tyr Ser His Ile Ser His
      290      295      300
Tyr Leu Arg Ala Val Arg Lys Asn Leu Pro Thr Gln Glu Thr Ser Glu
305      310      315      320

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Ile Leu Pro Lys Lys Glu Arg Ile Lys Glu Ala Leu Ala Leu Arg Leu  
 325 330 335  
 Arg Leu Leu Glu Gly Ala Asp Leu Ala Glu Phe Pro Ser Thr Leu Ile  
 340 345 350  
 Ser Met Leu Thr Gln Asp Val Lys Leu Gln Asn Leu Phe Ser Val His  
 355 360 365  
 Gly Gln Cys Leu Ala Leu Asn Arg Gln Gly Arg Leu Phe His Asp Thr  
 370 375 380  
 Ile Ala Glu Glu Ile Met Gly Tyr Ser Phe  
 385 390  
 <210>397  
 <211>600  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>397  
 Ser Leu Pro Asn Lys Phe Arg Ala Leu Met Thr Ala Pro Thr Glu Ser  
 1 5 10 15  
 Arg Ser Ser Pro Pro Thr Leu Leu Glu Glu Thr Glu Pro Leu Ser Pro  
 20 25 30  
 Asn Pro Ile Pro Ala Asp Ile Gln Ile Pro Arg Ile Thr Ile Ser Pro  
 35 40 45  
 Pro Ser Leu Asp Val Ser Thr Val Ala Ser Ser Ala Glu Asp Ile Ser  
 50 55 60  
 Val Phe Ile Ala Gly Gly Pro Arg Ser Ser Ser Ser Ala Ser Val Ala  
 65 70 75 80  
 Ser Asp Val Tyr Glu Leu Val Cys Leu Cys Gly Gly Asp Glu Asp Pro  
 85 90 95  
 Glu Pro Pro Asp Ser Glu Val Arg Thr Leu Tyr Val Asn Gly Ser Trp  
 100 105 110  
 Gln Thr His Gln Glu Ala Val Gln Glu Leu Leu Tyr Ile Ser Glu Val  
 115 120 125  
 Arg Gly Glu Ala Val Arg Leu Tyr Asn Asp Gly Ser Gly Met Ser  
 130 135 140  
 Pro Trp Pro Ile Ser Pro Cys Arg Thr Leu Pro Thr Leu Asp His Pro  
 145 150 155 160  
 Leu Cys Gln Ala Leu Leu Thr Val Trp Glu Gln Phe Phe Ser Ala Pro  
 165 170 175  
 Glu Asn Gln Asn Arg Glu Phe Leu Val Ile Phe Tyr Gly Asp Ala Ser  
 180 185 190  
 Pro Tyr Ile Gln Gln Ala Leu Thr Gln Ser Arg His Ser Pro Arg Ile  
 195 200 205  
 Val Val Val Gly Ile Ser Pro Thr Val Phe Ile Gln Gly Asp Phe Arg  
 210 215 220  
 Val His Asn Tyr Arg Val Ser Gly Asp Phe Phe Ser Ser Leu Asp Cys  
 225 230 235 240  
 Arg Gly Thr Arg Ala Glu Asn Thr Thr Ile Leu Pro Tyr Ser Ser Gly  
 245 250 255  
 Leu Glu Gly Val Phe Leu Pro Ser Ile Arg Cys Pro Ser Phe Thr Trp  
 260 265 270  
 Ala Val Arg Phe Gly Glu Gln Cys Leu Val Ala Asn Arg Gly Glu Asp  
 275 280 285  
 Val Glu Asp Arg Gly Gly Leu Ser Gln Asp Ala Glu Arg Ser Gln Leu  
 290 295 300  
 Pro His Ser Glu Arg Asp Leu Ala Val Val Ile Asp Ser Thr Asp Pro  
 305 310 315 320  
 Ser Ser Met Ser Arg Leu Val Glu Trp Leu Asn Gln Gly Ser Pro Ser  
 325 330 335  
 Ser Asp Met Glu Ile Asn Pro Tyr Pro Gln Arg Cys Pro Asp Val Ala  
 340 345 350  
 Leu Ser Ala Leu Tyr Ala Ile Ser Arg Val Ser Gly Leu Ala Gln Glu  
 355 360 365  
 Trp Ile Leu Ala Ser Val His Glu Gly Leu Asp Leu Gln Ile Cys Tyr  
 370 375 380  
 Ser Leu Ile Leu Met His Thr Thr Phe Ala Val Arg Tyr Phe Phe Leu

385                      390                      395                      400  
 Leu Phe Thr Asn Tyr Pro Gln Ser Arg Glu Arg Phe Arg Thr Ala Arg  
                                  405                      410                      415  
 Ile Val Ala Gln Ser Leu Tyr Leu Pro Ser Ile Leu Val Leu Val Phe  
                                  420                      425                      430  
 Asp Cys Gly Asn Val Leu Arg Lys Leu Trp Met Pro Gln Glu Ile Leu  
                                  435                      440                      445  
 Arg Ala Ile Phe Ile Ser Ala Ser Thr Ile Ser Gly Ser Ile Val Phe  
                                  450                      455                      460  
 Val Glu Cys Thr Arg Trp Met Gly Arg Gly Leu Arg His Arg Val Gln  
 465                      470                      475                      480  
 Gln Phe Val Gln Gln Arg Val Ile Gly Ser Gly Leu Pro Val Gly Thr  
                                  485                      490                      495  
 Val Arg Ala Ser Tyr Arg Asp Arg Ala Gly Phe Ile Ile Gly Phe Leu  
                                  500                      505                      510  
 Gln Thr Val His Gly Gly Leu Tyr Leu Pro Val Ser Ile Met Val Leu  
                                  515                      520                      525  
 Asn Gln Ile Ala Ile Gln Val Pro Arg Ile Leu Val Arg Pro Asn Asn  
 530                      535                      540  
 Thr Ala Val Tyr Asp Leu His Asn Lys Ser Ala Glu Glu Asn Trp Ser  
 545                      550                      555                      560  
 Ser Gly Asp Val Leu Ala Val Gly Gln Thr Leu Asn Phe Ile Leu Cys  
                                  565                      570                      575  
 Ala Phe Val Leu Phe Val Asn Leu Trp Phe Phe Val Lys Ser Val Leu  
                                  580                      585                      590  
 Arg His Ser Arg Arg Arg Arg Arg  
                                  595                      600

&lt;210&gt;398

&lt;211&gt;115

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;398

Arg Val Arg Thr Ser Glu Ser Gly Gly Ser Gly Ser Ser Ser Pro Pro  
   1                                  5                                  10                                  15  
 Gln Arg Gln Thr Asn Ser Tyr Thr Ser Glu Ala Thr Glu Ala Asp Glu  
                                   20                                  25                                  30  
 Glu Leu Leu Gly Pro Pro Ala Met Lys Thr Glu Ile Ser Ser Ala Glu  
                                   35                                  40                                  45  
 Asp Ala Thr Val Asp Thr Ser Arg Glu Gly Gly Asp Ile Val Ile Leu  
                                   50                                  55                                  60  
 Gly Ile Trp Ile Ser Ala Gly Ile Gly Phe Gly Asp Arg Gly Ser Val  
 65                                  70                                  75                                  80  
 Ser Ser Ser Ser Val Gly Gly Glu Asp Arg Asp Ser Val Gly Ala Val  
                                   85                                  90                                  95  
 Ile Asn Ala Leu Asn Leu Phe Gly Lys Asp Tyr Lys Ile Ser Ile Asp  
                                   100                                  105                                  110  
 Asn Thr Gln  
                                   115

&lt;210&gt;399

&lt;211&gt;239

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;399

Pro Val Thr Leu Tyr Leu Leu Pro Asn Thr Leu Gly Thr Arg Ala Val  
   1                                  5                                  10                                  15  
 Glu Thr Leu Pro Ser Val Ile Gly Glu Leu Val His Arg Leu Asp Gly  
                                   20                                  25                                  30  
 Leu Ile Val Glu Ser Asp Arg Gly Gly Arg Ala Phe Leu Ser Leu Trp  
                                   35                                  40                                  45  
 Lys Ile Pro Glu Val His Lys Phe Pro Leu Ala Ile Leu Ser Lys His  
                                   50                                  55                                  60  
 Ala Arg Leu Pro Lys Ala Trp Asp Phe Tyr Leu Glu Pro Ile Val Lys  
 65                                  70                                  75                                  80  
 His Gly Glu Asn Trp Gly Leu Ile Ser Asp Ala Gly Leu Pro Cys Ile

85 90 95  
 Ala Asp Pro Gly Ala Ser Leu Val Arg Arg Ala Arg Ala Leu Gly Ile  
 100 105 110  
 Pro Val Gln Ala Phe Ser Gly Pro Cys Ser Ile Thr Leu Ala Leu Met  
 115 120 125  
 Leu Ser Gly Leu Pro Ser Gln Ser Phe Thr Phe Leu Gly Tyr Leu Pro  
 130 135 140  
 Gln Ser Pro Lys Glu Arg Val Lys Ser Ile Lys Lys Ala Ala Thr Ser  
 145 150 155 160  
 Lys Glu Val Ser Thr Ser Val Cys Ile Glu Thr Pro Tyr Arg Asn Val  
 165 170 175  
 Tyr Thr Phe Glu Ser Leu Leu Asp Thr Leu Pro Ser Tyr Ala Glu Leu  
 180 185 190  
 Cys Val Ala Ser Asp Leu Ser Gly Pro Ser Glu Leu Val Leu Thr Arg  
 195 200 205  
 Gln Val Gln Ser Trp Arg Thr Thr Glu Asp Leu Gly Ser Val Lys Gln  
 210 215 220  
 Ser Ile Thr Lys Val Pro Thr Ile Phe Leu Phe His Ile Pro Asn  
 225 230 235

&lt;210&gt;400

&lt;211&gt;98

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;400

Gly Val Ser Ile His Thr Glu Val Asp Thr Ser Leu Glu Val Ala Ala  
 1 5 10 15  
 Phe Phe Ile Asp Phe Thr Arg Ser Leu Gly Leu Cys Gly Arg Tyr Pro  
 20 25 30  
 Lys Asn Val Lys Leu Trp Glu Gly Lys Pro Glu Ser Met Ser Ala Asn  
 35 40 45  
 Val Ile Glu Gln Gly Pro Glu Lys Ala Cys Thr Gly Ile Pro Lys Ala  
 50 55 60  
 Arg Ala Arg Arg Thr Lys Leu Ala Pro Gly Ser Ala Ile Gln Gly Arg  
 65 70 75 80  
 Pro Ala Ser Glu Ile Ser Pro Gln Phe Ser Pro Cys Phe Thr Ile Gly  
 85 90 95  
 Ser Arg

&lt;210&gt;401

&lt;211&gt;321

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;401

Val Gln Asp Thr Thr Phe Leu Thr Leu Pro Met Gln Lys Ser Leu Thr  
 1 5 10 15  
 Ser Phe Asp Asp Phe Ser Gln Ala Tyr Ala Glu Lys Val Pro Ala Ile  
 20 25 30  
 Ala Leu Ile Gly Ser Ala Leu Glu Asp Asp Lys Asp Ala Leu Ile Glu  
 35 40 45  
 Leu Leu Val Ser Glu Ser Phe Lys Glu Leu Gly Gly Gln Gly Leu Met  
 50 55 60  
 Pro Ala Thr Leu Met Ser Trp Thr Glu Thr Phe Ala Leu Phe Gln Glu  
 65 70 75 80  
 His Glu Thr Leu Gly Ile Ile His Ala Glu Lys Phe Pro Leu Ala Thr  
 85 90 95  
 Lys Glu Phe Leu Ser Arg Tyr Ala Arg Asn Pro Gln Pro His Leu Thr  
 100 105 110  
 Ile Leu Ile Phe Thr Thr Lys Gln Glu Cys Phe Arg Glu Leu Ser Lys  
 115 120 125  
 Ala Leu Pro Ser Ala Leu Ser Leu Ser Leu Phe Gly Glu Trp Pro Ala  
 130 135 140  
 Asp Arg Gln Lys Arg Ile Ile Arg Leu Leu Leu Gln Arg Ala Glu Arg  
 145 150 155 160  
 Val Gly Ile Ser Cys Ser Gln Ser Leu Ala Ser Leu Phe Leu Arg Ala

```

      165      170      175
Leu Ala Ser Thr Ser Leu Pro Asp Ile Leu Ser Glu Phe Asp Lys Leu
      180      185      190
Leu Cys Ser Val Gly Lys Lys Thr Ser Leu Asp His Ser Asp Ile Lys
      195      200      205
Glu Leu Val Val Lys Lys Glu Lys Ala Ser Leu Trp Lys Phe Arg Asp
      210      215      220
Ser Leu Leu Lys Arg Asp Pro Val Glu Gly His Gln Gln Leu His Phe
      225      230      235      240
Leu Leu Glu Asp Gly Glu Asp Pro Leu Gly Ile Ile Thr Phe Leu Arg
      245      250      255
Thr Gln Cys Leu Tyr Gly Leu Arg Ser Ile Glu Glu Gly Ser Lys Glu
      260      265      270
Asn Lys His Arg Met Phe Val Leu Tyr Gly Lys Glu Arg Leu His Gln
      275      280      285
Ala Leu Asn Ser Leu Phe Tyr Ala Glu Thr Leu Ile Lys Asn Asn Val
      290      295      300
Gln Asp Pro Ile Val Ala Val Glu Thr Leu Val Ile Arg Met Val Asn
      305      310      315      320
Leu

```

&lt;210&gt;402

&lt;211&gt;182

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;402

```

Val Ile Thr Cys Leu Ile Arg Gly Ile Lys Met Ile Gly Ala Gln Lys
  1           5           10           15
Lys Gln Ser Gly Lys Lys Thr Ala Ser Arg Ala Val Arg Lys Pro Ala
      20           25           30
Lys Lys Val Ala Ala Lys Arg Thr Val Lys Lys Ala Thr Val Arg Lys
      35           40           45
Thr Ala Val Lys Lys Pro Ala Val Arg Lys Thr Ala Ala Lys Lys Thr
      50           55           60
Val Ala Lys Lys Thr Thr Ala Lys Arg Thr Val Arg Lys Thr Val Ala
      65           70           75           80
Lys Lys Pro Ala Val Lys Lys Val Ala Ala Lys Arg Val Val Lys Lys
      85           90           95
Thr Val Ala Lys Lys Thr Thr Ala Lys Arg Ala Val Arg Lys Thr Val
      100          105          110
Ala Lys Lys Pro Val Ala Arg Lys Thr Thr Val Ala Lys Gly Ser Pro
      115          120          125
Lys Lys Ala Ala Ala Cys Ala Leu Ala Cys His Xaa Asn His Lys His
      130          135          140
Thr Ser Ser Cys Lys Arg Val Cys Ser Ser Thr Ala Thr Arg Lys His
      145          150          155          160
Gly Ser Lys Ser Arg Val Arg Thr Ala Xaa Gly Trp Arg His Gln Leu
      165          170          175
Ile Lys Met Met Ser Arg
      180

```

&lt;210&gt;403

&lt;211&gt;197

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;403

```

Arg Gln Pro Xaa Ala Val Arg Thr Arg Leu Leu Glu Pro Cys Phe Leu
  1           5           10           15
Val Ala Val Glu Glu Gln Thr Arg Leu Gln Leu Asp Val Cys Leu Trp
      20           25           30
Phe Xaa Trp His Ala Lys Ala Gln Ala Ala Ala Phe Leu Gly Glu Pro
      35           40           45
Leu Ala Thr Val Val Phe Leu Ala Thr Gly Phe Leu Ala Thr Val Leu
      50           55           60
Arg Thr Ala Leu Leu Ala Val Val Phe Phe Ala Thr Val Phe Phe Thr

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```
<210>404
<211>192
<212>PRT
<213>Chlamydia pneumoniae
<400>404
```

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<210>405
<211>325
<212>PRT
<213>Chlamydia pneumoniae
<400>405
```

606



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      100      105      110
Ile Ser Glu Leu Arg Leu Ser Ala Glu Glu Phe Leu Val Gly Leu Ser
      115      120      125
Ser Gly Ile Leu Ser Leu Asn Tyr Asp Tyr Pro Arg Tyr Asn Lys Val
      130      135      140
Asp Arg Asn Leu Glu Thr Pro Leu Ser Lys Val Thr Val Ile Gly Ile
      145      150      155      160
Val Pro Lys Met Ala Asp Ala Ile Phe Arg Lys Glu Ala Ala Ile Phe
      165      170      175
Glu Gly Val Tyr Leu Thr Arg Asp Leu Val Asn Arg Asn Ala Asp Glu
      180      185      190
Ile Thr Pro Lys Lys Leu Ala Glu Val Ala Leu Asn Leu Gly Lys Glu
      195      200      205
Phe Pro Ser Ile Asp Thr Lys Val Leu Gly Lys Asp Ala Ile Ala Lys
      210      215      220
Glu Lys Met Gly Leu Leu Leu Ala Val Ser Lys Gly Ser Cys Val Asp
      225      230      235      240
Pro His Phe Ile Val Val Arg Tyr Gln Gly Arg Pro Lys Ser Lys Asp
      245      250      255
His Thr Val Leu Ile Gly Lys Gly Val Thr Phe Asp Ser Gly Gly Leu
      260      265      270
Asp Leu Lys Pro Gly Lys Ser Met Leu Thr Met Lys Glu Asp Met Ala
      275      280      285
Gly Gly Ala Thr Val Leu Gly Ile Leu Ser Ala Leu Ala Xaa Leu Glu
      290      295      300
Leu Pro Ile Asn Val Thr Gly Ile Ile Pro Ala Tyr Arg Glu Cys Tyr
      305      310      315      320
Arg Trp Arg Leu Leu
      325

```

&lt;210&gt;406

&lt;211&gt;105

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;406

```

Asp Ala Ser Leu Leu Glu Glu Arg Leu Arg Ser His Cys Cys Trp Arg
  1      5      10      15
Tyr Leu Cys Arg Glu Leu His Glu Gln Arg Trp Phe His Arg Asn Ser
      20      25      30
Ser Leu Val Ile Ser Val Asp Ser Leu Lys Phe Ser Pro Phe Gly Arg
      35      40      45
Asn Glu Gly Ser Arg Ser Pro Ser Leu Glu Asp Asn His Gln Gln Val
      50      55      60
Gly Tyr Glu Ser Val Ser Val Gly Phe Glu Gly Glu Ala Leu Asp Ala
      65      70      75      80
Glu Ala Ile Lys Asp Lys Asp Met Tyr Ala Gly Tyr Gly Gln Glu Gln
      85      90      95
Gln Tyr Val Cys Glu Asp Val Pro Phe
      100      105

```

&lt;210&gt;407

&lt;211&gt;89

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;407

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Met Met Phe Gly His Phe Ala Gly Tyr Leu Gly Ala Asp Pro Glu Glu
  1      5      10      15
Arg Met Thr Ser Lys Gly Lys Arg Val Ile Thr Leu Arg Leu Gly Val
      20      25      30
Lys Thr Arg Val Gly Met Lys Asp Glu Thr Val Trp Cys Lys Cys Asn
      35      40      45
Ile Trp His Asn Arg Tyr Asp Lys Met Leu Pro Tyr Leu Lys Lys Gly
      50      55      60
Ser Gly Val Ile Val Ala Gly Asp Ile Ser Val Glu Ser Tyr Met Ser
      65      70      75      80
Lys Asp Gly Phe Thr Ala Ile Leu Leu

```

85

&lt;210&gt;408

&lt;211&gt;179

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;408

Leu Glu Thr Thr Thr Ile Tyr Tyr Lys Glu Ile Pro Ser Cys Pro Arg  
 1 5 10 15  
 Gln Asn Ala Glu Asn Leu Lys Asn Phe Ala Lys Glu Leu Lys Leu  
 20 25 30  
 Pro Asp Val Ala Phe Asp Gln Asn Asn Thr Cys Ile Leu Phe Val Asp  
 35 40 45  
 Gly Glu Phe Ser Leu His Leu Thr Tyr Glu Glu His Ser Asp Arg Leu  
 50 55 60  
 Tyr Val Tyr Ala Pro Leu Leu Asp Gly Leu Pro Asp Asn Thr Gln Arg  
 65 70 75 80  
 Lys Leu Ala Leu Tyr Glu Lys Leu Leu Glu Gly Ser Met Leu Gly Gly  
 85 90 95  
 Gln Met Ala Gly Gly Gly Val Gly Val Ala Thr Lys Glu Gln Leu Ile  
 100 105 110  
 Leu Met His Cys Val Leu Asp Met Lys Tyr Ala Glu Thr Asn Leu Leu  
 115 120 125  
 Lys Ala Phe Ala Gln Leu Phe Ile Glu Thr Val Val Lys Trp Arg Thr  
 130 135 140  
 Val Cys Ala Asp Ile Cys Ala Gly Arg Glu Pro Ser Val Asp Thr Met  
 145 150 155 160  
 Pro Gln Met Pro Gln Gly Gly Gly Gly Met Gln Pro Pro Pro Thr Gly  
 165 170 175  
 Ile Arg Ala

&lt;210&gt;409

&lt;211&gt;666

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;409

Ser Thr Met Glu Lys Val Ser Ser Tyr Pro Ser Val Pro Leu Pro Leu  
 1 5 10 15  
 Gly Ala Ser Lys Ile Ser Pro Asn Arg Tyr Arg Phe Ala Leu Tyr Ala  
 20 25 30  
 Ser Gln Ala Thr Glu Val Ile Leu Ala Leu Thr Asp Glu Asn Ser Glu  
 35 40 45  
 Val Ile Glu Val Pro Leu Tyr Pro Asp Thr His Arg Thr Gly Ala Ile  
 50 55 60  
 Trp His Ile Glu Ile Glu Gly Ile Ser Asp Gln Ser Ser Tyr Ala Phe  
 65 70 75 80  
 Arg Val His Gly Pro Lys Lys His Gly Met Gln Tyr Ser Phe Lys Glu  
 85 90 95  
 Tyr Leu Ala Asp Pro Tyr Ala Lys Asn Ile His Ser Pro Gln Ser Phe  
 100 105 110  
 Gly Ser Arg Lys Lys Gln Gly Asp Tyr Ala Phe Cys Tyr Leu Lys Glu  
 115 120 125  
 Glu Pro Phe Pro Trp Asp Gly Asp Gln Pro Leu His Leu Pro Lys Glu  
 130 135 140  
 Glu Met Ile Ile Tyr Glu Met His Val Arg Ser Phe Thr Gln Ser Ser  
 145 150 155 160  
 Ser Ser Arg Val His Ala Pro Gly Thr Phe Leu Gly Ile Ile Glu Lys  
 165 170 175  
 Ile Asp His Leu His Lys Leu Gly Ile Asn Ala Val Glu Leu Leu Pro  
 180 185 190  
 Ile Phe Glu Phe Asp Glu Thr Ala His Pro Phe Arg Asn Ser Lys Phe  
 195 200 205  
 Pro Tyr Leu Cys Asn Tyr Trp Gly Tyr Ala Pro Leu Asn Phe Phe Ser  
 210 215 220  
 Pro Cys Arg Arg Tyr Ala Tyr Ala Ser Asp Pro Cys Ala Pro Ser Arg

225                      230                      235                      240  
 Glu Phe Lys Thr Leu Val Lys Thr Leu His Gln Glu Gly Ile Glu Val  
                                  245                      250                      255  
 Ile Leu Asp Val Val Phe Asn His Thr Gly Leu Gln Gly Thr Thr Cys  
                                  260                      265                      270  
 Ser Leu Pro Trp Ile Asp Thr Pro Ser Tyr Tyr Ile Leu Asp Ala Gln  
                                  275                      280                      285  
 Gly His Phe Thr Asn Tyr Ser Gly Cys Gly Asn Thr Leu Asn Thr Asn  
                                  290                      295                      300  
 Arg Ala Pro Thr Thr Gln Trp Ile Leu Asp Ile Leu Arg Tyr Trp Val  
 305                                   310                                   315                                   320  
 Glu Glu Met His Val Asp Gly Phe Arg Phe Asp Leu Ala Ser Val Phe  
                                  325                                   330                                   335  
 Ser Arg Gly Pro Ser Gly Ser Pro Leu Gln Phe Ala Pro Val Leu Glu  
                                  340                                   345                                   350  
 Ala Ile Ser Phe Asp Pro Leu Leu Ala Ser Thr Lys Ile Ile Ala Glu  
                                  355                                   360                                   365  
 Pro Trp Asp Ala Gly Gly Leu Tyr Gln Val Gly Tyr Phe Pro Thr Leu  
 370                                   375                                   380  
 Ser Pro Arg Trp Ser Glu Trp Asn Gly Pro Tyr Arg Asp Asn Val Lys  
 385                                   390                                   395                                   400  
 Ala Phe Leu Asn Gly Asp Gln Asn Leu Ile Gly Thr Phe Ala Ser Arg  
                                  405                                   410                                   415  
 Ile Ser Gly Ser Gln Asp Ile Tyr Pro His Gly Ser Pro Thr Asn Ser  
                                  420                                   425                                   430  
 Ile Asn Tyr Val Ser Cys His Asp Gly Phe Thr Leu Cys Asp Thr Val  
                                  435                                   440                                   445  
 Thr Tyr Asn His Lys His Asn Glu Ala Asn Gly Glu Asp Asn Arg Asp  
                                  450                                   455                                   460  
 Gly Thr Asp Ala Asn Tyr Ser Tyr Asn Phe Gly Thr Glu Gly Lys Thr  
 465                                   470                                   475                                   480  
 Glu Asp Pro Gly Ile Leu Glu Val Arg Glu Arg Gln Leu Arg Asn Phe  
                                  485                                   490                                   495  
 Phe Leu Thr Leu Met Val Ser Gln Gly Ile Pro Met Ile Gln Ser Gly  
                                  500                                   505                                   510  
 Asp Glu Tyr Ala His Thr Ala Glu Gly Asn Asn Asn Arg Trp Ala Leu  
                                  515                                   520                                   525  
 Asp Ser Asn Ala Asn Tyr Phe Leu Trp Asp Gln Leu Thr Ala Lys Pro  
                                  530                                   535                                   540  
 Thr Leu Met His Phe Leu Cys Asp Leu Ile Ala Phe Arg Lys Lys Tyr  
 545                                   550                                   555                                   560  
 Lys Thr Leu Phe Asn Arg Gly Phe Leu Ser Asn Lys Glu Ile Ser Trp  
                                  565                                   570                                   575  
 Val Asp Ala Met Gly Asn Pro Met Thr Trp Arg Pro Gly Asn Phe Leu  
                                  580                                   585                                   590  
 Ala Phe Lys Ile Lys Ser Pro Lys Ala His Val Tyr Val Ala Phe His  
                                  595                                   600                                   605  
 Val Gly Ala Gln Asp Gln Leu Ala Thr Leu Pro Lys Ala Ser Ser Asn  
                                  610                                   615                                   620  
 Phe Leu Pro Tyr Gln Ile Val Ala Glu Ser Gln Gln Gly Phe Val Pro  
 625                                   630                                   635                                   640  
 Gln Asn Val Ala Thr Pro Thr Val Ser Leu Gln Pro His Thr Thr Leu  
                                  645                                   650                                   655  
 Ile Ala Ile Ser His Ala Lys Glu Val Thr  
                                  660                                   665  
  
 <210>410  
 <211>312  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>410  
 Thr Val Phe Asn Phe Lys Arg Phe Tyr Gln Lys Asp Ser Gln Arg Gln  
   1                                  5                                  10                                  15  
 Asn Gly Asn Thr Thr Cys Leu Arg Pro Phe Lys Lys Thr Cys Lys Glu  
                                   20                                  25                                  30

Leu Ile Glu Phe Arg Arg Arg Thr Val Lys Leu Leu Lys Asn Val Leu  
 35 40 45  
 Leu Gly Leu Phe Phe Ser Met Ser Ile Ser Gly Phe Ser Glu Val Lys  
 50 55 60  
 Val Ser Asp Thr Phe Val Lys Gln Asp Thr Val Val Glu Pro Lys Ile  
 65 70 75 80  
 Arg Val Leu Leu Ser Asn Glu Ser Thr Thr Ala Leu Ile Glu Ala Lys  
 85 90 95  
 Gly Pro Tyr Arg Ile Tyr Gly Asp Asn Val Leu Leu Asp Thr Ala Ile  
 100 105 110  
 Gln Gly Gln Arg Cys Val Val His Ala Leu Tyr Glu Gly Ile Arg Trp  
 115 120 125  
 Gly Glu Phe Tyr Pro Gly Leu Gln Cys Leu Lys Ile Glu Pro Val Asp  
 130 135 140  
 Asp Thr Ala Ser Leu Phe Phe Asn Gly Ile Gln Tyr Gln Gly Ser Leu  
 145 150 155 160  
 Tyr Val His Arg Lys Asp Asn His Cys Ile Met Val Ser Asn Glu Val  
 165 170 175  
 Thr Ile Glu Asp Tyr Leu Lys Ser Val Leu Ser Ile Lys Tyr Leu Glu  
 180 185 190  
 Glu Leu Asp Lys Glu Ala Leu Ser Ala Cys Ile Ile Leu Glu Arg Thr  
 195 200 205  
 Ala Leu Tyr Glu Lys Leu Leu Ala Arg Asn Pro Gln Asn Phe Trp His  
 210 215 220  
 Val Lys Ala Glu Glu Glu Tyr Ala Gly Phe Gly Val Thr Lys Gln  
 225 230 235 240  
 Phe Tyr Gly Val Glu Glu Ala Ile Asp Trp Thr Ala Arg Leu Val Val  
 245 250 255  
 Asp Ser Pro Gln Gly Leu Ile Ile Asp Ala Gln Gly Leu Leu Gln Ser  
 260 265 270  
 Asn Val Asp Arg Leu Ala Ile Glu Gly Phe Asn Ala Arg Gln Ile Leu  
 275 280 285  
 Glu Lys Phe Tyr Lys Asp Val Asp Phe Val Val Ile Glu Ser Trp Asn  
 290 295 300  
 Glu Glu Leu Asp Gly Glu Ile Arg  
 305 310

&lt;210&gt;411

&lt;211&gt;337

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;411

Met Thr His Gln Val Ala Val Leu His Gln Asp Lys Lys Phe Asp Val  
 1 5 10 15  
 Ser Leu Arg Pro Lys Gly Leu Glu Glu Phe Tyr Gly Gln His His Leu  
 20 25 30  
 Lys Glu Arg Leu Asp Leu Phe Leu Cys Ala Ala Leu Gln Arg Gly Glu  
 35 40 45  
 Val Pro Gly His Cys Leu Phe Phe Gly Pro Pro Gly Leu Gly Lys Thr  
 50 55 60  
 Ser Leu Ala His Ile Val Ala Tyr Thr Val Gly Lys Gly Leu Val Leu  
 65 70 75 80  
 Ala Ser Gly Pro Gln Leu Ile Lys Pro Ser Asp Leu Leu Gly Leu Leu  
 85 90 95  
 Thr Ser Leu Gln Glu Gly Asp Val Phe Phe Ile Asp Glu Ile His Arg  
 100 105 110  
 Met Gly Lys Val Ala Glu Glu Tyr Leu Tyr Ser Ala Met Glu Asp Phe  
 115 120 125  
 Lys Val Asp Ile Thr Ile Asp Ser Gly Pro Gly Ala Arg Ser Val Arg  
 130 135 140  
 Val Asp Leu Ala Pro Phe Thr Leu Val Gly Ala Thr Thr Arg Ser Gly  
 145 150 155 160  
 Met Leu Ser Glu Pro Leu Arg Thr Arg Phe Ala Phe Ser Ala Arg Leu  
 165 170 175  
 Ser Tyr Tyr Ser Asp Gln Asp Leu Lys Glu Ile Leu Val Arg Ser Ser

```

      180      185      190
His Leu Leu Gly Ile Glu Ala Asp Ser Ser Ala Leu Leu Glu Ile Ala
      195      200      205
Lys Arg Ser Arg Gly Thr Pro Arg Leu Ala Asn His Leu Leu Arg Trp
      210      215      220
Val Arg Asp Phe Ala Gln Ile Arg Glu Gly Asn Cys Ile Asn Gly Asp
      225      230      235      240
Val Ala Glu Lys Ala Leu Ala Met Leu Leu Ile Asp Asp Trp Gly Leu
      245      250      255
Asn Glu Ile Asp Ile Lys Leu Leu Thr Thr Ile Ile Asp Tyr Tyr Gln
      260      265      270
Gly Gly Pro Val Gly Ile Lys Thr Leu Ser Val Ala Val Gly Glu Asp
      275      280      285
Ile Lys Thr Leu Glu Asp Val Tyr Glu Pro Phe Leu Ile Leu Lys Gly
      290      295      300
Phe Ile Lys Lys Thr Pro Arg Gly Arg Met Val Thr Gln Leu Ala Tyr
      305      310      315      320
Asp His Leu Lys Arg His Ala Lys Asn Leu Leu Ser Leu Gly Glu Gly
      325      330      335

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Gln

&lt;210&gt;412

&lt;211&gt;190

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;412

```

Met Ser Ile Lys Glu Asp Lys Trp Ile Arg Glu Met Ala Leu Asn Ala
  1           5           10           15
Asp Met Ile His Pro Phe Val Asn Gly Gln Val Asn Val Asn Glu Glu
      20           25           30
Thr Gly Glu Lys Leu Ile Ser Tyr Gly Leu Ser Ser Tyr Gly Tyr Asp
      35           40           45
Leu Arg Leu Ser Arg Glu Phe Lys Val Phe Thr Asn Val Tyr Asn Ser
      50           55           60
Val Val Asp Pro Lys Cys Phe Thr Glu Asp Ile Phe Ile Ser Ile Thr
      65           70           75           80
Asp Asp Val Cys Ile Val Pro Pro Asn Ser Phe Ala Leu Ala Arg Ser
      85           90           95
Val Glu Tyr Phe Arg Ile Pro Arg Asn Val Leu Thr Met Cys Ile Gly
      100          105          110
Lys Ser Thr Tyr Ala Arg Cys Gly Ile Ile Val Asn Val Thr Pro Phe
      115          120          125
Glu Pro Glu Trp Glu Gly His Val Thr Ile Glu Ile Ser Asn Thr Thr
      130          135          140
Pro Leu Pro Ala Lys Ile Tyr Ala Asn Glu Gly Ile Ala Gln Val Leu
      145          150          155          160
Phe Phe Glu Ser Ser Thr Thr Cys Glu Val Ser Tyr Ala Asp Arg Lys
      165          170          175
Gly Lys Tyr Gln Lys Gln Gln Gly Ile Thr Val Pro Cys Val
      180          185          190

```

&lt;210&gt;413

&lt;211&gt;165

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;413

```

Lys Phe Leu Thr Leu Arg His Cys Gln Arg Lys Phe Thr Leu Met Lys
  1           5           10           15
Gly Leu Pro Arg Ser Tyr Ser Leu Ser Leu Val Arg Pro Ala Arg Phe
      20           25           30
Leu Met Gln Thr Glu Lys Glu Ser Ile Lys Ser Asn Lys Ala Ser Pro
      35           40           45
Tyr Leu Val Ser Lys Val Ser Val Arg Lys Lys Asn Trp Gly Phe Arg
      50           55           60
Leu Leu Glu Glu Val Met Ile Lys Ser Trp Trp Val Ile Phe Ser Ile

```

65 70 75 80  
 Leu Ile Gly Gly Phe Val Tyr Asp Arg Ala Ile Gln Glu Leu Arg Thr  
 85 90 95  
 Glu Glu Leu Arg Leu Gln Ser Lys Val Ser Ser Leu Cys Gln Asp Ile  
 100 105 110  
 Leu Ser Ala Gln Glu Lys Gln Arg Gln Leu Gln Leu His Leu Gln His  
 115 120 125  
 Trp Gln Asp Ser Ala Ala Ile Glu Ala Ala Leu Ile Gln Arg Leu Gly  
 130 135 140  
 Leu Ile Pro Lys Gly Tyr Lys Lys Leu Cys Val Ser Pro Lys Gln Gln  
 145 150 155 160  
 Ser Glu Asn Lys Asp  
 165  
 <210>414  
 <211>414  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>414  
 Lys Glu Thr Met Ile Pro Thr Met Leu Met Phe Phe Ile Ile Cys Phe  
 1 5 10 15  
 Thr Leu Cys Ser Gly Phe Ile Ser Leu Ser Gln Ile Ala Leu Phe Ser  
 20 25 30  
 Leu Pro Thr Ser Leu Ile Ser His Tyr Lys Arg Ser Lys Ser Lys Lys  
 35 40 45  
 Gln Gln Arg Val Ala Thr Leu Leu His Pro His His Leu Leu Ile  
 50 55 60  
 Thr Leu Ile Phe Cys Asp Ile Gly Leu Asn Ile Ala Ile Gln Asn Cys  
 65 70 75 80  
 Phe Ala Ile Leu Phe Gly Asp Ala Ala Ser Trp Trp Phe Thr Val Gly  
 85 90 95  
 Leu Pro Leu Ala Ile Thr Leu Ile Leu Gly Glu Ile Leu Pro Lys Ala  
 100 105 110  
 Val Ala Leu Pro Phe Asn Thr Gln Ile Ala Ser Ser Val Ala Pro Leu  
 115 120 125  
 Ile Leu Cys Val Thr Lys Ile Phe Lys Pro Leu Leu His Trp Gly Ile  
 130 135 140  
 Val Gly Ile Asn Tyr Val Val Gln Trp Ile Leu Ser Lys Gln Gln Ile  
 145 150 155 160  
 Asp Ile Ile Gln Pro Gln Glu Leu Lys Glu Val Leu Gln Ser Cys Lys  
 165 170 175  
 Asp Phe Gly Val Val Asn Gln Glu Glu Ser Arg Leu Leu Tyr Gly Tyr  
 180 185 190  
 Leu Ser Leu Ser Asp Cys Ser Val Lys Glu Arg Met Gln Pro Arg Gln  
 195 200 205  
 Asp Ile Leu Phe Tyr Asp Ile Gln Thr Pro Leu Glu Asn Leu Tyr Leu  
 210 215 220  
 Leu Phe Ser Lys Gln His Cys Ser Arg Val Pro Ile Cys Asn Asp Asn  
 225 230 235 240  
 Leu Gln Asn Leu Leu Gly Ile Cys Thr Ala Arg Ser Leu Leu Leu His  
 245 250 255  
 Asp Lys Pro Leu Gln Ser Ser Asp Asp Leu Leu Pro Leu Leu Lys Lys  
 260 265 270  
 Pro Tyr Tyr Met Pro Glu Thr Ile Ser Ala Lys Met Ala Leu Cys Gln  
 275 280 285  
 Met Ala Ala Glu Asp Glu Thr Leu Gly Met Ile Ile Asp Glu Tyr Gly  
 290 295 300  
 Ser Ile Glu Gly Leu Ile Thr Gln Glu Asp Leu Phe Glu Ile Val Ala  
 305 310 315 320  
 Gly Glu Ile Val Asp Gln Arg Asp Asn Lys Ile Leu Tyr Thr Thr Ser  
 325 330 335  
 Gly Ala Asp Val Ile Ile Ala Ser Gly Thr Leu Glu Leu Arg Glu Phe  
 340 345 350  
 Ser Glu Ile Phe Asp Ile Asn Leu Pro Thr Asn Asn Asn Ile Ala Thr  
 355 360 365

Ile Gly Gly Trp Leu Ile Glu Gln Ile Gly Thr Ile Pro Thr Thr Gly  
 370 375 380  
 Met Lys Leu Ser Trp Asn Asn Leu Leu Phe Gln Val Leu Asp Ala Ala  
 385 390 395 400  
 Pro Asn Arg Ile Arg Arg Val Tyr Ile Arg Lys Leu Tyr Asp  
 405 410  
 <210>415  
 <211>404  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>415  
 Met Thr Asn Ser Ala Leu Phe Trp Ile Gly Val Asn Ile Ile Cys Ile  
 1 5 10 15  
 Val Leu Gln Gly Phe Tyr Ser Met Met Glu Met Ala Cys Val Ser Phe  
 20 25 30  
 Asn Arg Val Arg Leu Gln Tyr Tyr Leu Thr Lys Asp His Lys Lys Ala  
 35 40 45  
 Arg Tyr Ile Asn Phe Leu Ile Arg Arg Pro Tyr Arg Leu Phe Gly Thr  
 50 55 60  
 Val Met Leu Gly Val Asn Ile Ala Leu Gln Val Gly Ser Glu Ser Ser  
 65 70 75 80  
 Arg Asn Cys Tyr Arg Ala Leu Gly Ile Thr Pro Asp Tyr Ala Pro Phe  
 85 90 95  
 Thr Gln Ile Phe Ile Val Val Ile Phe Ala Glu Leu Leu Pro Leu Thr  
 100 105 110  
 Ile Ser Arg Lys Ile Pro Glu Lys Leu Ala Leu Trp Gly Ala Pro Ile  
 115 120 125  
 Leu Tyr Tyr Ser His Tyr Ile Phe Tyr Pro Leu Ile Gln Leu Ile Gly  
 130 135 140  
 Ser Leu Thr Glu Gly Leu Tyr Tyr Leu Leu Asn Ile Arg Lys Glu Lys  
 145 150 155 160  
 Leu Asn Ser Thr Leu Ser Arg Asp Glu Phe Gln Lys Ala Leu Glu Thr  
 165 170 175  
 His His Glu Glu Gln Asp Phe Asn Thr Ile Ala Thr Asn Ile Phe Ser  
 180 185 190  
 Leu Ser Ala Thr Cys Ala Asp Gln Val Cys Gln Pro Leu Glu Gln Val  
 195 200 205  
 Thr Met Leu Pro Ser Ser Ala Asn Val Lys Asp Phe Cys Arg Thr Ile  
 210 215 220  
 Lys Asn Thr Asp Ile Asn Phe Ile Pro Val Tyr His Lys Ala Arg Lys  
 225 230 235 240  
 Asn Val Ile Gly Ile Ala His Pro Lys Asp Phe Val Asn Lys Ala Leu  
 245 250 255  
 Asp Glu Pro Leu Ile Asn Asn Leu His Ser Pro Trp Phe Ile Thr Ala  
 260 265 270  
 Lys Ser Lys Leu Ile Arg Ile Leu Lys Glu Phe Arg Asp Asn Arg Ser  
 275 280 285  
 Ser Val Ala Val Val Leu Asn Ala Ser Gly Glu Pro Ile Gly Ile Leu  
 290 295 300  
 Ser Leu Asn Ala Ile Phe Lys Ile Leu Phe Asn Thr Thr Asn Ile Ala  
 305 310 315 320  
 His Leu Lys Pro Lys Thr Ile Ser Val Ile Glu Arg Thr Phe Pro Gly  
 325 330 335  
 Asn Ser Arg Ile Lys Asp Leu Gln Lys Glu Leu Asp Ile Gln Phe Pro  
 340 345 350  
 Gln Tyr Pro Val Glu Thr Leu Ala Gln Leu Val Leu Gln Leu Leu Asp  
 355 360 365  
 Ser Pro Ala Glu Val Gly Thr Ser Val Ile Ile Asn Asn Leu Leu Leu  
 370 375 380  
 Glu Val Lys Glu Met Ser Leu Ser Gly Ile Lys Thr Val Ser Ile Lys  
 385 390 395 400  
 Asn Leu Leu Ser

&lt;210&gt;416

&lt;211&gt;373

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;416

Tyr Ser Met Ile Tyr Leu Asp Asn Asn Ala Met Thr Pro Pro Glu Arg  
 1 5 10 15  
 Gly Leu Leu Glu Phe Leu Gln Lys Thr Phe Leu Ile Glu Gly Thr Tyr  
 20 25 30  
 Ala Asn Pro Ser Ser Val His Gln Leu Gly Lys Lys Ser Arg Gln Leu  
 35 40 45  
 Val Leu Glu Ala Ser His Trp Met Gln Lys Val Leu Ser Phe Gln Gly  
 50 55 60  
 Arg Val Leu Tyr Thr Ser Gly Ala Thr Glu Ser Leu Asn Leu Ala Ile  
 65 70 75 80  
 Ala Ser Leu Pro Lys Asp Ser His Val Ile Thr Ser Gly Ser Glu His  
 85 90 95  
 Pro Ala Ile Leu Glu Pro Leu Lys His Ser Ser Leu Ser Val Ser Tyr  
 100 105 110  
 Leu Asn Pro Glu Glu Gly Arg Cys Val Leu Thr Ile Glu Gln Ile Glu  
 115 120 125  
 Arg Ala Val Thr Pro Lys Thr Ser Ala Ile Ile Leu Gly Trp Val Asn  
 130 135 140  
 Ser Glu Thr Gly Ala Lys Ala Asp Ile Ala Ala Ile Ala His Phe Ala  
 145 150 155 160  
 Gln Glu Arg Gln Leu Gln Phe Ile Val Asp Ala Thr Ala Asn Val Gly  
 165 170 175  
 Lys Glu Arg Ile Val Leu Pro Ser Gly Val Thr Met Ala Ala Phe Ser  
 180 185 190  
 Gly His Lys Phe His Ala Leu Ser Gly Ile Gly Ala Leu Leu Val Ser  
 195 200 205  
 Pro Gly Val Lys Leu His Pro Gln Leu Trp Gly Gly Gln Gln Gly  
 210 215 220  
 Gly Leu Arg Ala Gly Thr Glu Asn Leu Trp Gly Ile Ala Ser Leu Leu  
 225 230 235 240  
 Tyr Ile Phe Lys Tyr Leu Asp Leu His Gln Glu Arg Ile Ser Gln Glu  
 245 250 255  
 Ile Leu Thr His Arg Asn Gly Phe Glu Lys Ala Ile Lys Ala Arg Ile  
 260 265 270  
 Pro Asp Val His Ile His Cys Ala Asp Gln Pro Arg Ala Asn Asn Val  
 275 280 285  
 Ser Ala Ile Ala Phe Pro Pro Leu Glu Gly Glu Val Leu Gln Ile Ala  
 290 295 300  
 Leu Asp Ile Glu Gly Val Ala Cys Gly Tyr Gly Ser Ala Cys Ser Ser  
 305 310 315 320  
 Gly Ala Thr Ala Pro Phe Lys Ser Leu Val Ser Met Gly Val Asp Glu  
 325 330 335  
 Glu Leu Thr Leu Ala Thr Leu Arg Phe Ser Phe Ser His Leu Leu Leu  
 340 345 350  
 Gln Glu Asp Val Glu Arg Ala Val Gly Ile Ile Glu Lys Val Val Glu  
 355 360 365  
 Arg Leu Lys Asn Ser  
 370

&lt;210&gt;417

&lt;211&gt;248

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;417

Glu His Phe Val Asp Phe Asp Tyr Phe Gly Leu Ser Asp Ile Gly Arg  
 1 5 10 15  
 Val Arg Ala Arg Asn Glu Asp Phe Trp Gln Val Asn Leu Met Ser Gln  
 20 25 30  
 Val Val Ala Ile Ala Asp Gly Val Gly Gly Arg Leu Gly Gly Asp Ile  
 35 40 45  
 Ala Ser Gln Glu Ala Val Thr Ser Leu Met Glu Leu Ile Asp Glu Gln



50 55 60  
 Gln Ser Lys Leu Met Gly Tyr Glu Asp Asp Gln Tyr Lys Glu Thr Leu  
 65 70 75 80  
 Lys Lys Ile Leu Leu Glu Val Asn Gly Val Val Tyr Glu His Gly Gln  
 85 90 95  
 Met Glu Glu His Leu Gln Gly Met Gly Thr Thr Leu Ser Phe Ile Gln  
 100 105 110  
 Phe Arg Lys Asp Arg Ala Trp Leu Phe His Val Gly Asp Ser Arg Ile  
 115 120 125  
 Tyr Arg Ile Arg Glu Gly Glu Leu Arg Arg Leu Thr Glu Asp His Ser  
 130 135 140  
 Leu Glu Asn Gln Leu Lys Asn Arg Tyr Gly Leu Pro Lys Gln Ser Asp  
 145 150 155 160  
 Lys Val Tyr Ser Tyr Arg His Ile Leu Thr Asn Val Leu Gly Ser Arg  
 165 170 175  
 Pro Tyr Val Met Pro Asp Ile Arg Asn Leu Pro Cys Glu Lys Glu Asp  
 180 185 190  
 Leu Tyr Cys Leu Cys Ser Asp Gly Leu Thr Asn Met Val Pro Asp Ile  
 195 200 205  
 Asp Ile Arg Asp Ile Leu Asn Gln Pro Ala Thr Leu Glu Arg Gly  
 210 215 220  
 Asn Ala Leu Ile Ser Leu Ala Asn Thr Arg Gly Gly Asp Asp Asn Ala  
 225 230 235 240  
 Thr Val Val Leu Val Arg Ile Gln  
 245

&lt;210&gt;418

&lt;211&gt;255

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;418

Tyr Lys Leu Met Arg Val Leu Asn Gly Lys Ser Leu Asn Cys Glu Ser  
 1 5 10 15  
 Ile Asp Leu Lys Ser Lys Asn Phe Pro Arg Ala Arg Ile Phe Cys Lys  
 20 25 30  
 Ile Ser Asn Leu Arg Thr Val Thr Met Arg Lys Met Leu Val Leu Leu  
 35 40 45  
 Ala Ser Leu Gly Leu Leu Ser Pro Thr Leu Ser Ser Cys Thr His Leu  
 50 55 60  
 Gly Ser Ser Gly Ser Tyr His Pro Lys Leu Tyr Thr Ser Gly Ser Lys  
 65 70 75 80  
 Thr Lys Gly Val Ile Ala Met Leu Pro Val Phe His Arg Pro Gly Lys  
 85 90 95  
 Ser Leu Glu Pro Leu Pro Trp Asn Leu Gln Gly Glu Phe Thr Glu Glu  
 100 105 110  
 Ile Ser Lys Arg Phe Tyr Ala Ser Glu Lys Val Phe Leu Ile Lys His  
 115 120 125  
 Asn Ala Ser Pro Gln Thr Val Ser Gln Phe Tyr Ala Pro Ile Ala Asn  
 130 135 140  
 Arg Leu Pro Glu Thr Ile Ile Glu Gln Phe Leu Pro Ala Glu Phe Ile  
 145 150 155 160  
 Val Ala Thr Glu Leu Leu Glu Gln Lys Thr Gly Lys Glu Ala Gly Val  
 165 170 175  
 Asp Ser Val Thr Ala Ser Val Arg Val Arg Val Phe Asp Ile Arg His  
 180 185 190  
 His Lys Ile Ala Leu Ile Tyr Gln Glu Ile Ile Glu Cys Ser Gln Pro  
 195 200 205  
 Leu Thr Thr Leu Val Asn Asp Tyr His Arg Tyr Gly Trp Asn Ser Lys  
 210 215 220  
 His Phe Asp Ser Thr Pro Met Gly Leu Met His Ser Arg Leu Phe Arg  
 225 230 235 240  
 Glu Val Val Ala Arg Val Glu Gly Tyr Val Cys Ala Asn Tyr Ser  
 245 250 255

&lt;210&gt;419

&lt;211&gt;231

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;419

Gly Asn Val Gln Val Tyr Ser Ser Leu Val Pro Trp Arg Arg Cys Ser  
 1 5 10 15  
 Ser Phe Gln Lys Leu Leu Tyr Leu Ala Ser Thr Leu Trp Glu Asn Thr  
 20 25 30  
 Phe Lys Xaa Arg Gln Val Leu Phe Gly Gly Ala Leu Leu Val Phe Ser  
 35 40 45  
 Ser Leu Val Ala Leu Ser Val Ser Ser Gln Thr Ala Glu Leu Leu Ser  
 50 55 60  
 Thr Met Thr Gly Ile Ser Leu Ala Phe Ala Phe Leu Phe Tyr Leu Xaa  
 65 70 75 80  
 Phe Leu Pro Lys Asp Ile Thr Arg Ala Ile Leu Phe Ser Gly Glu Arg  
 85 90 95  
 Xaa Val Lys Thr Ser Trp Arg Ala Leu Gly Ser Ala Ile Arg Met Trp  
 100 105 110  
 Ile Ile Ile Ile Pro Val Thr Gln Leu Ile Gly Ile Met Met Ser Lys  
 115 120 125  
 Phe Ile Thr Leu Val Leu Pro Thr Gln Glu Ile His Thr Gln Glu Val  
 130 135 140  
 Thr Gln Glu Val Gln Asn Ser Leu Pro Ile Thr Gly His Tyr Ile Ser  
 145 150 155 160  
 Met Ile Leu Asn Leu Gly Val Leu Thr Pro Phe Gly Glu Glu Val Phe  
 165 170 175  
 Phe Arg Gly Ile Leu Gln Thr Phe Leu Lys Asn Lys Met Thr Arg Ile  
 180 185 190  
 Ala Ala Val Leu Cys Ser Ser Ile Ile Phe Ser Phe Ile His Ile Glu  
 195 200 205  
 His Ser Leu Gly Ser Trp Val Phe Cys Pro Arg Ala Leu Cys Phe Ser  
 210 215 220  
 Leu Ile Cys Arg Val Ser Ile  
 225 230

&lt;210&gt;420

&lt;211&gt;130

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;420

Met Arg Asp His Ala Phe Ser Lys Leu Ile Gly Thr Val Arg Ala Met  
 1 5 10 15  
 Val Val Glu Gly Arg Cys Pro Trp Ser Leu Gln Gln Ser Leu Val Ser  
 20 25 30  
 Met Val Glu His Ile Leu Gly Glu Cys Gln Glu Phe His Glu Ala Val  
 35 40 45  
 Leu Gln Gly Lys Thr Val Gln Glu Val Gly Ser Glu Ala Gly Asp Val  
 50 55 60  
 Leu Thr Leu Val Leu Ile Leu Cys Phe Leu Leu Glu Arg Glu Gly Val  
 65 70 75 80  
 Leu Ala Ser Glu Asp Val Ala Asn Glu Ala Met Glu Lys Leu Arg Arg  
 85 90 95  
 Arg Ala Pro Tyr Ile Phe Ala Glu Asp Tyr Lys Pro Val Ser Ile Glu  
 100 105 110  
 Glu Ala Asp Arg Leu Trp Glu Leu Ala Lys His Arg Glu Lys Asn Glu  
 115 120 125  
 Ser Thr  
 130

&lt;210&gt;421

&lt;211&gt;375

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;421

Asn Phe Lys Arg Phe Cys Met Thr Lys Ile Ala Phe Ser Glu Lys Ala  
 1 5 10 15  
 Lys Asn Phe Pro Val Glu Ala Leu Lys Lys Trp Phe Glu Lys Asn Lys

20 25 30  
 Arg Ser Leu Pro Trp Arg Asp Asn Pro Thr Pro Tyr Ser Val Trp Val  
 35 40 45  
 Ser Glu Val Met Leu Gln Gln Thr Arg Ala Glu Val Val Ile Asp Tyr  
 50 55 60  
 Phe Asn Gln Trp Met Glu Arg Phe Pro Thr Ile Glu Ser Leu Ala Ala  
 65 70 75 80  
 Ala Lys Glu Glu Asp Val Ile Lys Leu Trp Glu Gly Leu Gly Tyr Tyr  
 85 90 95  
 Ser Arg Ala Arg His Leu Leu Glu Gly Ala Arg Met Val Met Glu Glu  
 100 105 110  
 Phe His Gly Lys Ile Pro Asp Asp Ala Ile Ser Leu Ala Gln Ile Arg  
 115 120 125  
 Gly Val Gly Pro Tyr Thr Val His Ala Ile Leu Ala Phe Ala Phe Lys  
 130 135 140  
 Arg Arg Ala Ala Ala Val Asp Gly Asn Val Leu Arg Val Leu Ser Arg  
 145 150 155 160  
 Ile Phe Leu Ile Glu Thr Ser Ile Asp Leu Glu Ser Thr Arg Thr Trp  
 165 170 175  
 Val Ser Arg Ile Ala Gln Ala Leu Leu Pro His Lys Ser Pro Glu Val  
 180 185 190  
 Ile Ala Glu Ala Leu Ile Glu Leu Gly Ala Cys Ile Cys Lys Lys Val  
 195 200 205  
 Pro Gln Cys His Arg Cys Pro Val Arg Gln Ala Cys Gly Ala Trp Arg  
 210 215 220  
 Glu Asn Lys Gln Phe Val Leu Pro Val Arg His Ala Arg Lys Lys Val  
 225 230 235 240  
 Ile Phe Leu His Arg Leu Val Ala Ile Val Leu Tyr Asp Gly Ser Leu  
 245 250 255  
 Val Val Glu Lys Arg Arg Pro Lys Glu Met Met Ala Gly Leu Tyr Glu  
 260 265 270  
 Phe Pro Tyr Ile Glu Val Glu Pro Glu Glu Gly Leu Gln Asp Ile Glu  
 275 280 285  
 Gly Phe Thr Lys Lys Met Glu Leu Ser Leu Glu Ser Pro Leu Glu Phe  
 290 295 300  
 Leu Gly Asn Leu Lys Glu Gln Arg His Ala Phe Thr Asn His Lys Val  
 305 310 315 320  
 His Leu Cys Pro Ile Ile Phe Lys Ala Thr Ser Leu Pro Gln Phe Gly  
 325 330 335  
 Glu Leu His Leu Leu Ser Asp Ile Asp His Leu Ala Phe Ser Ser Gly  
 340 345 350  
 His Lys Lys Ile Lys Asp Ala Leu Leu Ile Tyr Leu Gly Asp Val Arg  
 355 360 365  
 Ser Arg Glu Ser Ile Gly Val  
 370 375

&lt;210&gt;422

&lt;211&gt;234

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;422

Asn Phe Met Gln Leu Ser Asn Asp Lys Arg Ala Ala Leu Gln Tyr Phe  
 1 5 10 15  
 Met Glu Asn Phe Ser Trp Leu Ala Thr Gln Val Ser Arg Leu Ser Ser  
 20 25 30  
 Phe Leu Arg Ser Gln Leu Pro Asn His Ser Lys Gln Glu Ile Leu Ala  
 35 40 45  
 Ser Ile Arg Gln His Arg Cys Arg Val Asn Gly Phe Ile Glu Arg Phe  
 50 55 60  
 Glu Ser Tyr Lys Val Gln Pro Gly Asp Arg Val Ser Leu Ser Leu Ile  
 65 70 75 80  
 Pro Ser Thr Lys Gln Gln Pro Ser Ile Leu Trp Glu Asp Asp Tyr Ser  
 85 90 95  
 Ile Ile Tyr Glu Lys Pro Pro His Leu Thr Thr Glu Gln Met Ala His  
 100 105 110

Met Thr Arg Phe Phe Thr Val His Arg Leu Asp Lys Gly Thr Ser Gly  
 115 120 125  
 Cys Leu Leu Met Gly Lys Ser Lys Gln Ala Ala Thr Glu Leu Met Lys  
 130 135 140  
 Leu Phe Lys Gln Arg Lys Ile His Lys Gln Tyr Ile Ala Phe Val Phe  
 145 150 155 160  
 Gly His Pro Lys Lys Lys Phe Gly Thr Val Lys Ser Tyr Thr Ala Pro  
 165 170 175  
 Val Tyr Arg Arg Cys Gly Ala Val Ile Phe Gly Ala Ala Gly Pro Ser  
 180 185 190  
 Gln Gly Glu Pro Ile Lys Ser Ala Tyr Lys Trp Asp Cys Trp Val Ile  
 195 200 205  
 Leu Leu Ser Glu Met Ser Thr Thr Asp Leu Lys Asn Ser Leu Pro Arg  
 210 215 220  
 Ser Ser Ala Leu Ser Ser Met Leu Thr Pro  
 225 230  
 <210>423  
 <211>364  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>423  
 Glu Leu Glu Ala Leu Glu Gln Lys Tyr Gly Lys Ala Val Leu Leu Ile  
 1 5 10 15  
 Ala Leu Ser Glu Leu Gly Ile Asp Thr Met Ser Leu Leu Ser Gly His  
 20 25 30  
 Arg Leu Glu Gly Phe Pro Pro Ile Ala Glu Val Met Ala Ala Cys Asp  
 35 40 45  
 Arg Cys Ser Met Asp Phe Cys Glu Ile Leu Lys Ser Gln Ser Met Asp  
 50 55 60  
 Leu Trp Ala Asp Ala Ala Ser Cys Val Asp Gly Leu Leu Gln Asp Pro  
 65 70 75 80  
 Phe Trp Ser Thr Ala Ile Ala Ser Gly Ile Ala Lys Ser Ser Leu Gln  
 85 90 95  
 Glu Thr Glu Phe Glu Cys Glu Ser Lys Val Met Val Leu Ser Ser Trp  
 100 105 110  
 Gly Glu Gln Gly Ala Gln Val Cys Ser Pro Phe Asn Leu Glu Arg Ile  
 115 120 125  
 Cys Met Ser Phe Pro Ser Leu Lys Val Phe Ser Leu Lys Lys Asn Gly  
 130 135 140  
 Cys Glu Asn Met Gly Ile Gln Leu Ser Ala Ser Cys Met Asn Leu Leu  
 145 150 155 160  
 Met Ser Ile Phe Phe Val Ala Thr Asn Gly Gly Ser Thr Pro Ile Trp  
 165 170 175  
 Ile Thr Lys Glu Asn Leu Met Ala Leu Val Ala Leu Val Leu Ser His  
 180 185 190  
 Tyr Gln Cys Tyr Phe Val Pro Ala Thr Gly Asp Pro Gln Arg Gly Asn  
 195 200 205  
 Ile Leu Gly Asn Pro Glu Val Asn Ala Ile Leu Ala Arg Gly Met Gly  
 210 215 220  
 Met Arg Val Asp Leu Glu Arg Lys Arg Gly Gly Glu Ser Ser Ser Ser  
 225 230 235 240  
 Arg Tyr Leu Glu Leu Ala Ala Arg Cys Phe Glu Asn Ser Leu Thr Lys  
 245 250 255  
 Thr Ser Leu Leu Ser Asp Ala Asn Asn Val Gln Glu Arg Asp Lys Cys  
 260 265 270  
 Leu Leu Gln Met Ser Thr Ser Leu Met His Thr Ala Gly Leu Asn Leu  
 275 280 285  
 Gln Arg Pro Pro Val Pro Thr Pro Ser Gly Val Thr Ala His Pro Gln  
 290 295 300  
 Pro Gln Pro Asp Pro Val Thr Ser Gln Pro Ser Leu Leu Gly Ala  
 305 310 315 320  
 Arg Glu Arg Ser Pro Val Ser Ser Arg Gly Arg Phe Pro Val Val Leu  
 325 330 335  
 Pro Leu Ser Val Ile Ser Pro Arg Ser His Pro Gly Arg Val Glu Arg

340 345 350  
 Arg Asp Leu Glu Asp Glu Glu Glu Val Met Phe  
 355 360  
 <210>424  
 <211>283  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>424  
 Asn Ile Gln Thr Ser His Ser Arg Val Leu Leu Lys Lys Phe Ser Lys  
 1 5 10 15  
 Glu Phe Thr Ile Arg Thr Tyr Arg Ser Leu Gly Phe Thr Asp Tyr Leu  
 20 25 30  
 Gly Gly Cys Leu Thr Asn Pro Leu Gly Lys Phe Pro Ser Pro Gln Asn  
 35 40 45  
 Pro Gln Val Val Thr Ile Ala Pro Ser Ser Thr Thr Pro Gln Ala Val  
 50 55 60  
 Ser Ser Ala Val Gln Gly Phe Leu Gln Thr Gly Gly Ala Ala Ser Ser  
 65 70 75 80  
 Thr Ala Thr Thr Thr Thr Ala Ser Gly Ala Ser Ala Leu Gly Leu Ser  
 85 90 95  
 Pro Asp Gln Val Gln Ala Leu Leu Thr Asn Leu Leu Asn Val Gly Gln  
 100 105 110  
 Pro Ser Val Gly Gln Pro Ser Thr Ser Ala Gly Thr Ser Gly Ala Ser  
 115 120 125  
 Ser Ser Ser Ala Ser Met Gln Gln Leu Leu Gln Leu Ile Leu Asp  
 130 135 140  
 Lys Thr Thr Gly Ser Gly Gly Ser Ser Val Ser Ser Glu Gln Leu Gln  
 145 150 155 160  
 Gln Leu Leu Ser Leu Val Ser Gln Met Thr Thr Ser Gln Gly Gly Ser  
 165 170 175  
 Gly Gly Thr Gln Ala Gly Gln Ala Ala Ser Val Leu Leu Asn Leu Leu  
 180 185 190  
 Ser Ala Thr Gly Ser Ala Ala Ala Asn Pro Leu Gly Thr Ala Ala Ser  
 195 200 205  
 Leu Ala Gln Ile Ile Tyr Ala Ala Val Thr Ser Pro Gly Ala Lys Lys  
 210 215 220  
 Thr Ser Glu Phe Cys Tyr Asn Tyr Cys Gly Glu Thr Cys Gln Gly Asn  
 225 230 235 240  
 Cys Gly Cys Pro Thr Cys Gly Cys Pro Asp Gly Gln Cys Gly Cys Gly  
 245 250 255  
 Gly Phe Gly Arg Phe Phe Cys Gly Val Trp Lys Asn Cys Cys Gly Ile  
 260 265 270  
 Gly Glu Gly Ser Gln Glu Pro Ala Ile Pro Leu  
 275 280  
 <210>425  
 <211>302  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>425  
 Gly Gly Phe Met Leu Lys Ile Asp Leu Thr Gly Lys Val Ala Phe Val  
 1 5 10 15  
 Ala Gly Ile Gly Asp Asp Gln Gly Tyr Gly Trp Gly Ile Ala Lys Leu  
 20 25 30  
 Leu Ala Glu Ala Gly Ala Thr Ile Ile Val Gly Thr Trp Val Pro Ile  
 35 40 45  
 Tyr Lys Ile Phe Ser Gln Ser Trp Glu Leu Gly Lys Phe Asn Glu Ser  
 50 55 60  
 Arg Lys Leu Ser Asn Gly Thr Leu Leu Glu Ile Ala Lys Ile Tyr Pro  
 65 70 75 80  
 Met Asp Ala Ser Phe Asp Ser Pro Glu Asp Val Pro Glu Asp Ile Ala  
 85 90 95  
 Glu Asn Lys Arg Tyr Lys Gly Ile Thr Gly Phe Thr Ile Ser Glu Val  
 100 105 110  
 Ala Glu Gln Val Lys Lys Asp Phe Gly His Ile Asp Ile Leu Val His

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      115      120      125
Ser Leu Ala Asn Ser Pro Glu Ile Ser Lys Ser Leu Leu Glu Thr Ser
      130      135      140
Arg Lys Gly Tyr Leu Ala Ala Leu Ser Ala Ser Ser Tyr Ser Phe Val
      145      150      155      160
Ser Leu Leu Ser His Phe Gly Ser Ile Met Asn Arg Gly Gly Ser Thr
      165      170      175
Ile Ser Leu Thr Tyr Leu Ala Ser Met Arg Ala Val Pro Gly Tyr Gly
      180      185      190
Gly Gly Met Ser Ser Ala Lys Ala Ala Leu Glu Ser Asp Thr Lys Thr
      195      200      205
Leu Ala Trp Glu Ala Gly Arg Arg Trp Gly Ile Arg Val Asn Thr Ile
      210      215      220
Ser Ala Gly Pro Leu Ala Ser Arg Ala Gly Lys Ala Ile Gly Phe Ile
      225      230      235      240
Glu Arg Met Val Asp Tyr Tyr Gln Glu Trp Ala Pro Ile Pro Glu Ala
      245      250      255
Met Asn Ala Glu Gln Val Gly Ala Val Ala Ala Phe Leu Ala Ser Pro
      260      265      270
Leu Ala Ser Ala Ile Thr Gly Glu Thr Leu Tyr Val Asp His Gly Ala
      275      280      285
Asn Val Met Gly Ile Gly Pro Glu Met Phe Pro Lys Asp Ser
      290      295      300
<210>426
<211>300
<212>PRT
<213>Chlamydia pneumoniae
<400>426
Asn Tyr Gly Asp Ala Met Glu Lys Leu Leu Val Thr Asp Ile Asp Gly
  1      5      10      15
Thr Ile Thr His Gln Ser His His Leu Asp Lys Lys Val Tyr Glu Arg
      20      25      30
Leu Tyr Ala Leu His Gln Ala Gly Trp Lys Leu Phe Phe Leu Thr Gly
      35      40      45
Arg Tyr Tyr Lys Tyr Ala Ala Arg Leu Phe Ser Asp Phe Asp Ala Pro
      50      55      60
Tyr Leu Leu Gly Cys Gln Asn Gly Ala Ser Val Trp Ser Ser Thr Ser
      65      70      75      80
Ser Asn Leu Leu Tyr Ser Lys Ser Leu Pro Ser Asp Leu Leu Cys Ile
      85      90      95
Leu Gln Asp Cys Met Glu Gly Ala Thr Ala Leu Phe Ser Val Glu Ser
      100      105      110
Gly Ala Pro Tyr Gly Asp His Tyr Tyr Arg Phe Ser Pro Thr Pro Ile
      115      120      125
Ala Gln Asp Leu His Glu Tyr Val Asp Pro Arg Tyr Phe Pro Asn Ala
      130      135      140
Lys Glu Arg Glu Ile Leu Phe Glu Thr Arg Ser Leu Lys Asp Asp Tyr
      145      150      155      160
Ala Phe Pro Ser Phe Ala Ala Ala Lys Val Phe Gly Leu Arg Asp Glu
      165      170      175
Val Ile Arg Ile Gln Lys Glu Leu Glu Arg Gln Glu Ala Leu Thr Ser
      180      185      190
Val Ala Thr Met Thr Leu Met Arg Trp Pro Phe Asp Phe Arg Tyr Ala
      195      200      205
Ile Leu Phe Leu Thr Asp Lys Ser Val Ser Lys Gly Lys Ala Leu Asp
      210      215      220
Arg Val Val Asn Ile Leu Tyr Asp Gly Lys Lys Pro Phe Val Met Ala
      225      230      235      240
Ser Gly Asp Asp Ala Asn Asp Leu Asp Leu Ile Glu Arg Gly Asp Phe
      245      250      255
Lys Ile Val Met Ser Ser Ala Pro Glu Glu Met His Val His Ala Asp
      260      265      270
Phe Leu Ala Pro Pro Ala Asp Lys Asn Gly Ile Leu Ser Ala Trp Glu
      275      280      285

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Ala Gly Val Arg Tyr Tyr Asp Asp Leu Met Ser Leu  
 290 295 300

<210>427

<211>164

<212>PRT

<213>Chlamydia pneumoniae

<400>427

Ser Arg Val Leu His Met Phe Phe Asn Leu Phe Ser Leu Val Phe Lys  
 1 5 10 15  
 Leu Ser Asp Glu Leu Ala Leu Ala Glu Thr Ile Gln Glu Pro Ile Ser  
 20 25 30  
 Val His Glu Met Phe Pro Gly Ser Met Lys Leu Glu Met Phe Lys Met  
 35 40 45  
 Leu Gly Ser Leu Ile Leu Leu Leu Thr Ile Phe Gly Phe Gly Val Trp  
 50 55 60  
 Ala Phe Lys Lys Phe Val Arg Ser Arg Ser His Gly Phe Gly Gly Ser  
 65 70 75 80  
 Ser Gln Ile Lys Ile Leu Glu Arg Arg Ser Leu Thr Pro Lys Thr Ser  
 85 90 95  
 Ile Tyr Leu Ile Arg Val Val Asn Lys Thr Leu Val Ile Ala Glu Thr  
 100 105 110  
 Pro Glu Lys Ile Thr Leu Leu Thr Glu Phe Pro Pro Asp Thr Asp Ile  
 115 120 125  
 Asn His Leu Leu Gln Glu Asn Asn Lys Gln Ser Ser Ser Ala Thr  
 130 135 140  
 Ser Asp Phe Leu Ser Lys Ala Ile Gln Lys Ile Gln Lys Lys Gln Gln  
 145 150 155 160  
 Thr Asn Gln Asp

<210>428

<211>161

<212>PRT

<213>Chlamydia pneumoniae

<400>428

Met Thr Thr Trp Thr Leu Asn Gln Asn Asn Leu Thr Lys Phe Leu Lys  
 1 5 10 15  
 Ser Ser Asp Glu Glu Pro Phe Leu Glu Arg Glu Ser Gly Leu Thr Tyr  
 20 25 30  
 Ile Asn Ile Gln Ala Asn Gly Asn Glu Leu Pro Leu Phe Phe Val Ile  
 35 40 45  
 Arg Ser Glu Gly Glu Ile Leu Gln Leu Ile Cys Tyr Leu Pro Tyr Gln  
 50 55 60  
 Leu His Glu Ser His Lys Ala Ser Thr Ala Arg Leu Leu His Leu Leu  
 65 70 75 80  
 Asn Arg Asp Ile Asp Ile Pro Gly Phe Gly Met Asp Glu Glu Gln Gly  
 85 90 95  
 Leu Ile Phe Tyr Arg Leu Val Leu Pro Cys Leu Asn Gly Glu Ile His  
 100 105 110  
 Asp Thr Leu Leu Arg Ile Tyr Ile Asp Thr Ile Lys Leu Val Cys Asp  
 115 120 125  
 Ser Phe Ser His Ala Ile Gly Leu Ile Ser Ser Gly Asn Met Asn Leu  
 130 135 140  
 Asp Glu Leu Arg Arg Gln Ala Leu Gln Glu Gln Gln Glu Lys Arg Asn  
 145 150 155 160  
 Glu

<210>429

<211>249

<212>PRT

<213>Chlamydia pneumoniae

<400>429

Asp Val Arg Leu Phe Lys Ser Asn Lys Lys Asn Val Met Ser Ser Gln  
 1 5 10 15  
 Thr Met Asp Val Leu Ile Phe Tyr Asp Thr Glu Thr Thr Gly Thr Gln

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      20      25      30
Ile Glu Arg Asp Arg Ile Ile Glu Ile Ala Ala Tyr Asn Ser Val Thr
      35      40      45
Asp Glu Ser Phe Leu Thr Tyr Val Asn Pro Glu Ile Pro Ile Pro Asp
      50      55      60
Glu Ala Ser Lys Ile His Gly Ile Thr Thr Asp Ala Val Leu Ser Ala
      65      70      75      80
Pro Lys Phe Pro Glu Ala Tyr Glu Gly Phe Arg Lys Phe Cys Gly Glu
      85      90      95
Asp Ser Ile Leu Val Ala His Asn Asn Asp Gly Phe Asp Phe Pro Leu
      100      105      110
Leu Gly Lys Glu Cys Arg Arg His Ser Leu Glu Pro Leu Thr Asn Arg
      115      120      125
Thr Ile Asp Ser Leu Lys Trp Ala Gln Lys Tyr Arg Pro Asp Leu Pro
      130      135      140
Lys His Asn Leu Gln Tyr Leu Arg Gln Val Tyr Gly Phe Ala Glu Asn
      145      150      155      160
Gln Ala His Arg Ala Leu Asp Asp Val Val Ile Leu His Lys Val Phe
      165      170      175
Thr Ser Leu Ile Gly Asp Leu Pro Pro Gln Gln Val Leu Asp Leu Leu
      180      185      190
Gln Gln Ser Tyr His Pro Lys Val Phe Lys Met Pro Phe Gly Lys Tyr
      195      200      205
Lys Gly Gln Pro Leu Val Asp Ile Pro Lys Ser Tyr Phe Glu Trp Leu
      210      215      220
Glu Asn Gln Gly Ala Leu Asp Lys Pro Glu Asn Lys Asp Ile Lys Ala
      225      230      235      240
Ala Ile Ala Leu Leu His Gln Pro Thr
      245

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&lt;210&gt;430

&lt;211&gt;259

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;430

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Met Ile Leu Thr Ala Ala Phe Ser Pro Cys Pro Asn Asp Ile Phe Leu
  1      5      10      15
Phe Arg Ser Phe Leu Lys Asp Pro Gln Phe Arg Pro Leu Leu Asn Gln
      20      25      30
Val Thr Ile Ala Asp Ile Glu Thr Leu Asn Thr Leu Ala Leu Gln Arg
      35      40      45
Arg Leu Ser Leu Met Lys Met Ser Ala Ala Leu Phe Pro Leu Val Ser
      50      55      60
Asp Tyr Tyr Asn Leu Met Asp Val Gly Asn Thr Leu Gly Tyr Asn Ser
      65      70      75      80
Gly Pro Ile Val Leu Ser Leu Asp Pro Glu Cys Ser Leu Asp Thr Leu
      85      90      95
Ala Thr Pro Gly Glu Met Thr Thr Ala His Ala Leu Cys Lys Leu Tyr
      100      105      110
Tyr Pro Lys Ala Lys Leu Ile Pro Met Pro Tyr Asp Lys Ile Leu Ser
      115      120      125
Ala Ile Leu Gln Gly Lys Val Asp Gly Gly Ala Leu Ile His Glu Glu
      130      135      140
Arg Phe Ser Tyr Asp Leu Gln Leu Thr Leu Arg Ala Asp Phe Gly Glu
      145      150      155      160
Leu Trp Arg Arg Lys Thr Ile Phe Pro Leu Pro Leu Gly Cys Leu Ala
      165      170      175
Ile Ala Lys Tyr Val Pro Met Ala Thr Val Asp Ala Leu Thr Ala Ala
      180      185      190
Leu Arg Lys Ser Leu Ile Cys Ser Leu Lys Asp Pro Ile Thr Ala Gly
      195      200      205
Ala Lys Ala Val Glu Tyr Ser Lys Asn Lys Asn Val Thr Val Ile His
      210      215      220
Arg Phe Ile Gly Thr Tyr Ile Asn Lys Glu Thr Phe Gln Leu Ser Lys
      225      230      235      240

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Thr Gly Lys Lys Ala Leu His Met Leu Trp Lys Ala Asn Glu Cys Cys  
 245 250 255

Gln Tyr Thr

<210>431

<211>168

<212>PRT

<213>Chlamydia pneumoniae

<400>431

Glu Pro Ile Ser Thr Lys Lys Pro Phe Asn Tyr Leu Lys Leu Gly Lys  
 1 5 10 15  
 Lys Leu Tyr Ile Cys Ser Gly Arg Pro Met Asn Ala Val Asn Thr Pro  
 20 25 30  
 Lys Lys Ile Leu Cys Ile Val Ala Asp Tyr Arg Glu Ile Ser Pro Leu  
 35 40 45  
 Ile Glu Gln Leu Asp Phe Thr Gln Ile Asn Glu His Leu Tyr Ser Tyr  
 50 55 60  
 Arg Cys Thr Asp Tyr His Leu Asp Leu Tyr Ile Val His Val Trp Gly  
 65 70 75 80  
 Ser Thr Ala Val Leu Asn Ala Leu Gln Ser Tyr Cys Gln Ala Tyr Thr  
 85 90 95  
 Asp Tyr Asp Leu Trp Ile Asn Pro Gly Phe Val Gly Ala Cys Ser Pro  
 100 105 110  
 Glu Ile Pro Leu Gly Gln Cys Tyr Thr Ile Glu Lys Ile Ala Asn Leu  
 115 120 125  
 Thr Thr Asp Thr Pro Pro Val Leu Ser Glu Asp Pro Pro Tyr Ile Phe  
 130 135 140  
 Asp Ala Leu Pro Asp Ser Leu Pro Lys Ser Ser Leu Val Thr Ser Pro  
 145 150 155 160  
 Val Leu Tyr His Tyr Gly Phe Gln  
 165

<210>432

<211>659

<212>PRT

<213>Chlamydia pneumoniae

<400>432

Met Lys Leu Leu Leu Lys Ala Val Leu Arg His Lys Asn His Leu Val  
 1 5 10 15  
 Ile Leu Gly Cys Ser Leu Leu Ala Ile Leu Gly Leu Thr Phe Ser Ser  
 20 25 30  
 Gln Met Glu Ile Phe Ser Leu Gly Met Ile Ala Lys Thr Gly Pro Asp  
 35 40 45  
 Ala Phe Leu Leu Phe Gly Arg Lys Glu Ser Gly Lys Leu Val Lys Val  
 50 55 60  
 Ser Glu Leu Ser Gln Lys Asp Ile Leu Glu Asn Trp Gln Ala Ile Ser  
 65 70 75 80  
 Lys Asp Ser Glu Thr Leu Thr Val Ser Asp Ala Thr Thr Tyr Ile Ala  
 85 90 95  
 Glu His Gly Lys Ser Thr Ala Ser Leu Thr Ser Lys Leu Ser Lys Phe  
 100 105 110  
 Val Arg Asn Tyr Ile Asp Val Ser Arg Phe Arg Gly Leu Ala Ile Phe  
 115 120 125  
 Leu Ile Cys Val Ala Ile Phe Lys Ala Val Thr Leu Phe Phe Gln Arg  
 130 135 140  
 Phe Leu Gly Gln Val Val Ala Ile Arg Val Ser Arg Asp Leu Arg Gln  
 145 150 155 160  
 Asp Tyr Phe Lys Ala Leu Gln Gln Leu Pro Met Thr Phe Phe His Asp  
 165 170 175  
 His Asp Ile Gly Asn Leu Ser Asn Arg Val Met Thr Asp Ser Ala Ser  
 180 185 190  
 Ile Ala Leu Ala Val Asn Ser Leu Met Ile Asn Tyr Ile Gln Ala Pro  
 195 200 205  
 Ile Thr Phe Ile Leu Thr Leu Gly Val Cys Leu Ser Ile Ser Trp Lys  
 210 215 220

Phe Ser Ile Leu Ile Cys Val Ala Phe Pro Ile Phe Ile Leu Pro Ile  
 225 230 235 240  
 Val Val Ile Ala Arg Lys Ile Lys Asn Leu Ala Lys Arg Ile Gln Lys  
 245 250 255  
 Ser Gln Asp Ser Phe Ser Ser Val Leu Tyr Asp Phe Leu Ala Gly Val  
 260 265 270  
 Met Thr Val Lys Val Phe Arg Thr Glu Lys Phe Ala Phe Thr Lys Tyr  
 275 280 285  
 Cys Glu His Asn Asn Lys Ile Ser Ala Leu Glu Glu Lys Ser Ala Ala  
 290 295 300  
 Tyr Gly Leu Leu Pro Arg Pro Leu Leu His Thr Ile Ala Ser Leu Phe  
 305 310 315 320  
 Phe Ala Phe Val Val Val Ile Gly Ile Tyr Lys Phe Ala Ile Pro Pro  
 325 330 335  
 Glu Glu Leu Ile Val Phe Cys Gly Leu Leu Tyr Leu Ile Tyr Asp Pro  
 340 345 350  
 Ile Lys Lys Phe Gly Asp Glu Xaa Thr Ser Ile Met Arg Gly Cys Ala  
 355 360 365  
 Ala Ala Glu Arg Phe Tyr Glu Val Leu Asn His Pro Asp Leu His Ser  
 370 375 380  
 Gln Lys Glu Arg Glu Ile Glu Phe Leu Gly Leu Ser Asn Thr Ile Thr  
 385 390 395 400  
 Phe Glu Asn Val Ser Phe Gly Tyr Gln Glu Asp Lys His Ile Leu Lys  
 405 410 415  
 Asn Leu Ser Phe Thr Leu His Lys Gly Glu Ala Leu Gly Ile Val Gly  
 420 425 430  
 Pro Thr Gly Ser Gly Lys Thr Thr Leu Val Lys Leu Leu Pro Arg Leu  
 435 440 445  
 Tyr Glu Val Ser Gln Gly Lys Ile Leu Ile Asp Ser Leu Pro Ile Thr  
 450 455 460  
 Glu Tyr Asn Lys Gly Ser Leu Arg Asn His Ile Ala Cys Val Leu Gln  
 465 470 475 480  
 Asn Pro Phe Leu Phe Tyr Asp Thr Val Trp Asn Asn Leu Thr Cys Gly  
 485 490 495  
 Lys Asp Met Glu Glu Glu Ala Val Leu Glu Ala Leu Lys Arg Ala Tyr  
 500 505 510  
 Ala Asp Glu Phe Ile Leu Lys Leu Pro Lys Gly Val His Ser Val Leu  
 515 520 525  
 Glu Glu Ser Gly Lys Asn Leu Ser Gly Gly Gln Gln Gln Arg Leu Ala  
 530 535 540  
 Ile Ala Arg Ala Leu Leu Lys Asn Ala Ser Ile Leu Ile Leu Asp Glu  
 545 550 555 560  
 Ala Thr Ser Ala Leu Asp Ala Ile Ser Glu Asn Tyr Ile Lys Asn Ile  
 565 570 575  
 Ile Gly Glu Leu Lys Gly Gln Cys Thr Gln Ile Ile Ile Ala His Lys  
 580 585 590  
 Leu Thr Thr Leu Glu His Val Asp Arg Val Leu Tyr Ile Glu Asn Gly  
 595 600 605  
 Gln Lys Ile Ala Glu Gly Thr Lys Glu Glu Leu Leu Gln Thr Cys Pro  
 610 615 620  
 Glu Phe Leu Lys Met Trp Glu Leu Ser Gly Thr Lys Glu Tyr Asn Arg  
 625 630 635 640  
 Val Phe Val Pro Asp His Lys Leu Val Ala Asn Pro Thr Asp Met Ala  
 645 650 655  
 Ile Thr Thr

&lt;210&gt;433

&lt;211&gt;344

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;433

Leu Cys Leu Arg Ile Val Cys Ile Lys Met Ile Leu Phe Ile Arg Gly  
 1 5 10 15  
 Glu His Ile Leu Met Glu Leu Leu Pro His Glu Lys Gln Val Val Glu

20 25 30  
 Tyr Glu Lys Ala Ile Ala Glu Phe Lys Glu Lys Asn Lys Lys Asn Ser  
 35 40 45  
 Leu Leu Ser Ser Ser Glu Ile Gln Lys Leu Glu Lys Arg Leu Asp Lys  
 50 55 60  
 Leu Lys Glu Lys Ile Tyr Ser Asp Leu Thr Pro Trp Glu Arg Val Gln  
 65 70 75 80  
 Ile Cys Arg His Pro Ser Arg Pro Arg Thr Val Asn Tyr Ile Glu Gly  
 85 90 95  
 Met Cys Glu Glu Phe Val Glu Leu Cys Gly Asp Arg Thr Phe Arg Asp  
 100 105 110  
 Asp Pro Ala Val Val Gly Gly Phe Val Lys Ile Gln Gly Gln Arg Phe  
 115 120 125  
 Val Leu Ile Gly Gln Glu Lys Gly Cys Asp Thr Ala Ser Arg Leu His  
 130 135 140  
 Arg Asn Phe Gly Met Leu Cys Pro Glu Gly Phe Arg Lys Ala Leu Arg  
 145 150 155 160  
 Leu Gly Lys Leu Ala Glu Lys Phe Gly Leu Pro Val Val Phe Leu Val  
 165 170 175  
 Asp Thr Pro Gly Ala Tyr Pro Gly Leu Thr Ala Glu Glu Arg Gly Gln  
 180 185 190  
 Gly Trp Ala Ile Ala Lys Asn Leu Phe Glu Leu Ser Arg Leu Ala Thr  
 195 200 205  
 Pro Val Ile Ile Val Val Ile Gly Glu Gly Cys Ser Gly Gly Ala Leu  
 210 215 220  
 Gly Met Ala Val Gly Asp Ser Val Ala Met Leu Glu His Ser Tyr Tyr  
 225 230 235 240  
 Ser Val Ile Ser Pro Glu Gly Cys Ala Ser Ile Leu Trp Lys Asp Pro  
 245 250 255  
 Lys Lys Asn Ser Glu Ala Ala Ser Met Leu Lys Met His Gly Glu Asn  
 260 265 270  
 Leu Lys Gln Phe Gly Ile Ile Asp Thr Val Ile Lys Glu Pro Ile Gly  
 275 280 285  
 Gly Ala His His Asp Pro Ala Leu Val Tyr Ser Asn Val Arg Glu Phe  
 290 295 300  
 Ile Ile Gln Glu Trp Leu Arg Leu Lys Asp Leu Ala Ile Glu Glu Leu  
 305 310 315 320  
 Leu Glu Lys Arg Tyr Glu Lys Phe Arg Ser Ile Gly Leu Tyr Glu Thr  
 325 330 335  
 Thr Ser Glu Ser Gly Pro Glu Ala  
 340

&lt;210&gt;434

&lt;211&gt;434

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;434

Ser Gln Thr Gly Phe Leu Pro Gly Leu Thr Leu Ile Phe Val Ile Ile  
 1 5 10 15  
 Ile Val Trp Cys Asn Ala Phe Leu Ile Lys Leu Cys Val Ile Met Gly  
 20 25 30  
 Leu Gln Ser Arg Leu Gln His Cys Ile Glu Val Ser Gln Asn Ser Asn  
 35 40 45  
 Phe Asp Ser Gln Val Lys Gln Phe Ile Tyr Ala Cys Gln Asp Lys Thr  
 50 55 60  
 Leu Arg Gln Ser Val Leu Lys Ile Phe Arg Tyr His Pro Leu Leu Lys  
 65 70 75 80  
 Ile His Asp Ile Ala Arg Ala Val Tyr Leu Leu Met Ala Leu Glu Glu  
 85 90 95  
 Gly Glu Asp Leu Gly Leu Ser Phe Leu Asn Val Gln Gln Tyr Pro Ser  
 100 105 110  
 Gly Ala Val Glu Leu Phe Ser Cys Gly Gly Phe Pro Trp Lys Gly Leu  
 115 120 125  
 Pro Tyr Pro Ala Glu His Ala Glu Phe Gly Leu Leu Leu Gln Ile  
 130 135 140

Ala Glu Phe Tyr Glu Glu Ser Gln Ala Tyr Val Ser Lys Met Ser His  
 145 150 155 160  
 Phe Gln Gln Ala Leu Phe Asp His Gln Gly Ser Val Phe Pro Ser Leu  
 165 170 175  
 Trp Ser Gln Glu Asn Ser Arg Leu Leu Lys Glu Lys Thr Thr Leu Ser  
 180 185 190  
 Gln Ser Phe Leu Phe Gln Leu Gly Met Gln Ile His Pro Glu Tyr Ser  
 195 200 205  
 Leu Glu Asp Pro Ala Leu Gly Phe Trp Met Gln Arg Thr Arg Ser Ser  
 210 215 220  
 Ser Ala Phe Val Ala Ala Ser Gly Cys Gln Ser Ser Leu Gly Ala Tyr  
 225 230 235 240  
 Ser Ser Gly Asp Val Gly Val Ile Ala Tyr Gly Pro Cys Ser Gly Asp  
 245 250 255  
 Ile Ser Asp Cys Tyr Tyr Phe Gly Cys Cys Gly Ile Ala Lys Glu Phe  
 260 265 270  
 Val Cys Gln Xaa Ser His Gln Thr Thr Glu Ile Ser Phe Leu Thr Ser  
 275 280 285  
 Thr Gly Lys Pro His Pro Arg Asn Thr Gly Phe Ser Tyr Leu Arg Asp  
 290 295 300  
 Ser Tyr Val His Leu Pro Ile Arg Cys Lys Ile Thr Ile Ser Asp Lys  
 305 310 315 320  
 Gln Tyr Arg Val His Ala Ala Leu Ala Glu Ala Thr Ser Ala Met Thr  
 325 330 335  
 Phe Ser Ile Phe Cys Lys Gly Lys Asn Cys Gln Val Val Asp Gly Pro  
 340 345 350  
 Arg Leu Arg Ser Cys Ser Leu Asp Ser Tyr Lys Gly Pro Gly Asn Asp  
 355 360 365  
 Ile Met Ile Leu Gly Glu Asn Asp Ala Ile Asn Ile Val Ser Ala Ser  
 370 375 380  
 Pro Tyr Met Glu Ile Phe Ala Leu Gln Gly Lys Glu Lys Phe Trp Asn  
 385 390 395 400  
 Ala Asp Phe Leu Ile Asn Ile Pro Tyr Lys Glu Glu Gly Val Met Leu  
 405 410 415  
 Ile Phe Glu Lys Lys Val Thr Ser Glu Lys Gly Arg Phe Phe Thr Lys  
 420 425 430  
 Met Asn

&lt;210&gt;435

&lt;211&gt;85

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;435

Arg Arg Met Pro Asp Ser Leu His Lys Thr Leu Arg Ser Val Thr Gly  
 1 5 10 15  
 Val Gly Gln Ile Pro His Val Leu Gln Asp Lys Val Ile Leu Ser Lys  
 20 25 30  
 Glu Ile Pro His Lys Lys Thr Val Leu Gln His Leu Lys Gly Thr Ala  
 35 40 45  
 Val His Leu Lys Ser Leu Ser Leu Asn Pro Arg Leu Leu Leu Arg Pro  
 50 55 60  
 Ser Lys Asp Arg Arg Pro Glu Gln Tyr His Glu Phe Leu Val Lys Asp  
 65 70 75 80  
 Gly Ser Gly Lys Ser  
 85

&lt;210&gt;436

&lt;211&gt;105

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;436

Glu Ala Leu Ser Asn Met Ala Thr Met Thr Lys Lys Lys Leu Ile Ser  
 1 5 10 15  
 Thr Ile Ser Gln Asp His Lys Ile His Pro Asn His Val Arg Thr Val  
 20 25 30

Ile Gln Asn Phe Leu Asp Lys Met Thr Asp Ala Leu Val Lys Gly Asp  
 35 40 45  
 Arg Leu Glu Phe Arg Asp Phe Gly Val Leu Gln Val Val Glu Arg Lys  
 50 55 60  
 Pro Lys Val Gly Arg Asn Pro Arg Asn Ala Ala Val Pro Ile His Ile  
 65 70 75 80  
 Pro Ala Arg Arg Ala Val Lys Phe Thr Pro Gly Lys Arg Met Lys Arg  
 85 90 95  
 Leu Ile Glu Thr Pro Asn Lys His Ser  
 100 105

&lt;210&gt;437

&lt;211&gt;264

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;437

Met Lys Leu Thr Lys Tyr Leu Asn Thr Lys Gln Leu Arg Ser Met Ile  
 1 5 10 15  
 Ser Arg Leu Phe Val Arg Tyr Ser Leu Pro Met Ser Lys Gln Leu Ser  
 20 25 30  
 Phe Phe Ala Leu Cys Val Leu Gly Ser His Pro Ile Phe Ala Gln Thr  
 35 40 45  
 Pro Asn Pro Pro Gln Arg Val Arg Arg Ser Glu Val Ile Phe Ile Asp  
 50 55 60  
 Pro Gly His Gly Gly Lys Asp Gln Gly Thr Ala Ser Lys Glu Leu His  
 65 70 75 80  
 Tyr Glu Glu Lys Ser Leu Thr Leu Ser Leu Ala Leu Thr Val Gln Ser  
 85 90 95  
 Tyr Leu Lys Arg Met Gly Tyr Lys Pro Gln Leu Thr Arg Ser Ser Asp  
 100 105 110  
 Val Tyr Val Asp Leu Gly Lys Arg Val Ala Leu Ser Asn Arg Gly Gln  
 115 120 125  
 Gly Asp Val Phe Ile Ser Ile His Cys Asn His Ser Ser Asn Ala Ala  
 130 135 140  
 Ala Phe Gly Thr Glu Val Tyr Phe Tyr Asn Gly Lys Val Gly Ser Pro  
 145 150 155 160  
 Thr Arg Asn Arg Met Ser Glu Val Leu Gly Lys Asn Ile Leu Ala Ala  
 165 170 175  
 Met Glu Lys Asn Gly Ile Leu Lys Ser Arg Gly Leu Lys Thr Ala Asn  
 180 185 190  
 Phe Val Val Ile Arg Asp Thr Ser Met Pro Ala Val Leu Val Glu Thr  
 195 200 205  
 Gly Phe Leu Ser Asn Ser Arg Glu Arg Ala Ala Leu Gln Asp Ala Arg  
 210 215 220  
 Tyr Arg Met His Val Ala Lys Gly Ile Ala Glu Gly Val His Asn Phe  
 225 230 235 240  
 Leu Ser Gly Pro Ser Phe Gln Lys Pro Lys Gln Asn Ile Ala Lys Ile  
 245 250 255  
 Arg Lys Pro Gln Ile Gln Ala Asn  
 260

&lt;210&gt;438

&lt;211&gt;483

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;438

Met Asp Leu Lys Glu Leu Leu His Gly Val Gln Ala Lys Ile Tyr Gly  
 1 5 10 15  
 Lys Val Arg Pro Leu Glu Val Arg Asn Leu Thr Arg Asp Ser Arg Cys  
 20 25 30  
 Val Ser Val Gly Asp Ile Phe Ile Ala His Lys Gly Gln Arg Tyr Asp  
 35 40 45  
 Gly Asn Asp Phe Ala Val Asp Ala Leu Ala Asn Gly Ala Ile Ala Ile  
 50 55 60  
 Ala Ser Ser Leu Tyr Asn Pro Phe Leu Ser Val Val Gln Ile Ile Thr  
 65 70 75 80

Pro Asn Leu Glu Glu Leu Glu Ala Glu Leu Ser Ala Lys Tyr Tyr Glu  
                                     85                                    90                                    95  
 Tyr Pro Ser Ser Lys Leu His Thr Ile Gly Val Thr Gly Thr Asn Gly  
                                     100                                    105                                    110  
 Lys Thr Thr Val Thr Cys Leu Ile Lys Ala Leu Leu Asp Ser Tyr Gln  
                                     115                                    120                                    125  
 Lys Pro Ser Gly Leu Leu Gly Thr Ile Glu His Ile Leu Gly Glu Gly  
                                     130                                    135                                    140  
 Val Ile Lys Asp Gly Phe Thr Thr Pro Thr Pro Ala Leu Leu Gln Lys  
                                     145                                    150                                    155                                    160  
 Tyr Leu Ala Thr Met Val Arg Gln Asn Arg Asp Ala Val Val Met Glu  
                                     165                                    170                                    175  
 Val Ser Ser Ile Gly Leu Ala Ser Gly Arg Val Ala Tyr Thr Asn Phe  
                                     180                                    185                                    190  
 Asp Thr Ala Val Leu Thr Asn Ile Thr Leu Asp His Leu Asp Phe His  
                                     195                                    200                                    205  
 Gly Thr Phe Glu Thr Tyr Val Ala Ala Lys Ala Lys Leu Phe Ser Leu  
                                     210                                    215                                    220  
 Val Pro Pro Ser Gly Met Val Val Ile Asn Thr Asp Ser Pro Tyr Ala  
                                     225                                    230                                    235                                    240  
 Ser Gln Cys Ile Glu Ser Ala Lys Ala Pro Val Ile Thr Tyr Gly Ile  
                                     245                                    250                                    255  
 Glu Ser Ala Ala Asp Tyr Arg Ala Thr Asp Ile Gln Leu Ser Ser Ser  
                                     260                                    265                                    270  
 Gly Thr Lys Tyr Thr Leu Val Tyr Gly Asp Gln Lys Ile Ala Cys Ser  
                                     275                                    280                                    285  
 Ser Ser Phe Ile Gly Lys Tyr Asn Val Tyr Asn Leu Leu Ala Ala Ile  
                                     290                                    295                                    300  
 Ser Thr Val His Ala Ser Leu Arg Cys Asp Leu Glu Asp Leu Leu Glu  
                                     305                                    310                                    315                                    320  
 Lys Ile Gly Leu Cys Gln Pro Pro Pro Gly Arg Leu Asp Pro Val Leu  
                                     325                                    330                                    335  
 Met Gly Pro Cys Pro Val Tyr Ile Asp Tyr Ala His Thr Pro Asp Ala  
                                     340                                    345                                    350  
 Leu Asp Asn Val Leu Thr Gly Leu His Glu Leu Leu Pro Glu Gly Gly  
                                     355                                    360                                    365  
 Arg Leu Ile Val Val Phe Gly Cys Gly Gly Asp Arg Asp Arg Ser Lys  
                                     370                                    375                                    380  
 Arg Lys Leu Met Ala Gln Val Val Glu Arg Tyr Gly Phe Ala Val Val  
                                     385                                    390                                    395                                    400  
 Thr Ser Asp Asn Pro Arg Ser Glu Pro Pro Glu Asp Ile Val Asn Glu  
                                     405                                    410                                    415  
 Ile Cys Asp Gly Phe Tyr Ser Lys Asn Tyr Phe Ile Glu Ile Asp Arg  
                                     420                                    425                                    430  
 Lys Gln Ala Ile Thr Tyr Ala Leu Ser Ile Ala Ser Asp Arg Asp Ile  
                                     435                                    440                                    445  
 Val Leu Ile Ala Gly Lys Gly His Glu Ala Tyr Gln Ile Phe Lys His  
                                     450                                    455                                    460  
 Gln Thr Val Ala Phe Asp Asp Lys Gln Thr Val Cys Glu Val Leu Ala  
                                     465                                    470                                    475                                    480  
 Ser Tyr Val

&lt;210&gt;439

&lt;211&gt;653

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;439

Met Ser Tyr Arg Lys Arg Ser Thr Leu Ile Val Leu Gly Val Phe Ala  
                                     1                                    5                                    10                                    15  
 Leu Tyr Ala Leu Leu Val Leu Arg Tyr Tyr Lys Xaa Gln Ile Cys Glu  
                                     20                                    25                                    30  
 Gly Asp His Trp Ala Ala Glu Ala Leu Gly Gln His Glu Phe Cys Val  
                                     35                                    40                                    45  
 Arg Asp Pro Phe Arg Arg Gly Thr Phe Phe Ala Asn Thr Thr Val Arg

|                         |                     |                     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---------------------|---------------------|-----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 50                      | 55                  | 60                  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Lys Gly Asp Lys Asp     | Leu Gln Gln Pro Phe | Ala Val Asp Ile Thr | Lys |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 65                      | 70                  | 75                  | 80  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Phe His Leu Cys Ala Asp | Pro Leu Ala Ile Pro | Glu Cys His Arg     | Asp |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 85                  | 90                  | 95  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Glu Ile Ile Gln Gly Ile | Leu Gln Phe Ile Glu | Gly Gln Thr Tyr     | Asp |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 100                 | 105                 | 110 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Asp Leu Ser Leu Lys Leu | Asp Lys Ser Arg Tyr | Cys Lys Leu Tyr     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 115                 | 120                 | 125 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Pro Leu Leu Asp Val Ser | Val His Asp Arg Leu | Ser Leu Trp Trp     | Lys |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 130                 | 135                 | 140 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Gly Tyr Ala Thr Lys His | Arg Leu Pro Thr Asn | Ala Leu Phe Phe     | Ile |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 145                 | 150                 | 155 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Thr Asp Tyr Gln Arg Ser | Tyr Pro Phe Gly Lys | Leu Leu Gly Gln     | Val |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 165                 | 170                 | 175 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Leu His Thr Leu Arg Glu | Ile Lys Asp Glu Lys | Thr Gly Lys Ala     | Phe |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 180                 | 185                 | 190 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Pro Thr Gly Gly Met Glu | Ala Tyr Phe Asn His | Ile Leu Glu Gly     | Asp |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 195                 | 200                 | 205 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Val Gly Glu Arg Lys Leu | Leu Arg Ser Pro Leu | Asn Arg Leu Asp     | Thr |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 210                 | 215                 | 220 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Asn Arg Val Ile Lys Leu | Pro Lys Asp Gly Ser | Asp Ile Tyr Leu     | Thr |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 225                 | 230                 | 235 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ile Asn Pro Val Ile Gln | Thr Ile Ala Glu Glu | Leu Glu Arg Gly     |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 245                 | 250                 | 255 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Val Leu Glu Ala Lys Ala | Gln Gly Gly Arg Leu | Ile Leu Met Asn     | Ser |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 260                 | 265                 | 270 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Gln Thr Gly Glu Ile Leu | Ala Leu Ala Gln Tyr | Pro Phe Phe Asp     | Pro |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 275                 | 280                 | 285 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Thr Asn Tyr Lys Glu Tyr | Phe Asn Asn Lys Glu | Arg Ile Glu His     | Thr |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 290                 | 295                 | 300 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Lys Val Ser Phe Val Ser | Asp Val Phe Glu Pro | Gly Ser Ile Met     | Lys |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 305                 | 310                 | 315 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Pro Leu Thr Val Ala Ile | Ala Leu Gln Ala Asn | Glu Glu Ala Ser     | Leu |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 325                 | 330                 | 335 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Lys Ser Gln Lys Lys Ile | Phe Asp Pro Glu Glu | Pro Ile Asp Val     | Thr |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 340                 | 345                 | 350 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Arg Thr Leu Phe Pro Gly | Arg Lys Gly Ser Pro | Leu Lys Asp Ile     | Ser |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 355                 | 360                 | 365 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Arg Asn Ser Gln Leu Asn | Met Tyr Met Ala Ile | Gln Lys Ser Ser     | Asn |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 370                 | 375                 | 380 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Val Tyr Val Ala Gln Leu | Ala Asp Arg Ile Ile | Gln Ser Leu Gly     | Val |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 385                 | 390                 | 395 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ala Trp Tyr Gln Gln Lys | Leu Leu Ala Leu Gly | Phe Gly Arg Lys     | Thr |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 405                 | 410                 | 415 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Gly Ile Glu Leu Pro Ser | Glu Ala Ser Gly Leu | Val Pro Ser Pro     | His |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 420                 | 425                 | 430 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Arg Phe His Ile Asn Gly | Ser Leu Glu Trp Ser | Leu Ser Thr Pro     | Tyr |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 435                 | 440                 | 445 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ser Leu Ala Met Gly Tyr | Asn Ile Leu Ala Thr | Gly Ile Gln Met     | Val |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 450                 | 455                 | 460 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Gln Ala Tyr Ala Ile Leu | Ala Asn Gly Gly Tyr | Ala Val Arg Pro     | Thr |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 465                 | 470                 | 475 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Leu Val Lys Lys Ile Val | Ser Ala Ser Gly Glu | Glu Tyr His Leu     | Pro |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 485                 | 490                 | 495 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Thr Lys Glu Lys Thr Arg | Leu Phe Ser Glu Glu | Ile Thr Arg Glu     | Val |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 500                 | 505                 | 510 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Val Arg Ala Met Arg Phe | Thr Thr Leu Pro Gly | Gly Ser Gly Phe     | Arg |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 515                 | 520                 | 525 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ala Ser Pro Lys His His | Ser Ser Ala Gly Lys | Thr Gly Thr Thr     | Glu |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 530                 | 535                 | 540 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Lys Met Ile His Gly Lys | Tyr Asp Lys Arg Arg | His Ile Ala Ser     | Phe |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                         | 545                 | 550                 | 555 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ile Gly Phe Thr Pro Val | Glu Ser Ser Glu Gly | Asn Phe Pro Pro     | Leu |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

|          |     |     |           |          |     |     |     |           |           |     |     |     |           |     |     |
|----------|-----|-----|-----------|----------|-----|-----|-----|-----------|-----------|-----|-----|-----|-----------|-----|-----|
| Gly<br>1 | Leu | Ala | Met       | Val<br>5 | Glu | Ile | Phe | Asn       | Tyr<br>10 | Ser | Thr | Ser | Ile<br>15 | Tyr | Glu |
| Gln      | His | Ala | Ser<br>20 | Asn      | Asn | Arg | Ile | Val<br>25 | Ser       | Asp | Phe | Arg | Lys<br>30 | Glu | Ile |
| Gln      | Met | Glu | Gly       | Ile      | Ser | Ile | Arg | Asp       | Val       | Ala | Lys | His | Ala       | Gln | Ile |



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      35      40      45
Leu Asp Met Asn Pro Lys Pro Ser Ala Leu Thr Ser Leu Leu Gln Thr
      50      55      60
Asn Gln Lys Ser His Trp Ala Cys Phe Ser Pro Pro Asn Asn Phe Tyr
      65      70      75      80
Lys Gln Arg Phe Ser Thr Pro Tyr Leu Ala Pro Ser Leu Gly Ser Pro
      85      90      95
Asp Gln Gln Asp Glu Asp Ile Glu Lys Ile Ser Ser Phe Leu Lys Val
      100      105      110
Leu Thr Arg Gly Lys Phe Ser Tyr Arg Ser Gln Ile Thr Pro Phe Leu
      115      120      125
Ser Tyr Lys Asp Lys Glu Glu Glu Glu Asp Glu Asp Pro Glu Glu Asp
      130      135      140
Asp Asp Asp Pro Arg Val Gln Gln Gly Lys Val Leu Leu Lys Ala Leu
      145      150      155      160
Asp Leu Gly Val Lys Ser Thr Asn Val Met Ile Asp Tyr Val Ile Ser
      165      170      175
Arg Ile Phe Gln Phe Val Gln Gly
      180

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&lt;210&gt;442

&lt;211&gt;143

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;442

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Cys Met Leu Asp Asn Glu Trp Lys Ala Ile Leu Gly Trp Gly Asp Asp
      1      5      10      15
Glu Leu Glu Glu Leu Arg Ile Ser Gly Tyr Ser Phe Leu Arg Gln Gly
      20      25      30
His Tyr Ser Lys Ala Ile Leu Phe Phe Glu Ala Leu Val Ile Leu Asp
      35      40      45
Pro Leu Ser Ile Tyr Asp His Gln Thr Leu Gly Gly Leu Tyr Leu Gln
      50      55      60
Ile Gly Glu Asn Ser Gln Ala Leu Ala Val Leu Asp Gln Ala Leu Arg
      65      70      75      80
Met Gln Gly Asp His Leu Pro Thr Leu Leu Asn Lys Thr Lys Ala Leu
      85      90      95
Phe Cys Leu Gly Arg Ile Glu Glu Ala Thr Ala Ile Ala Thr Tyr Leu
      100      105      110
Ser Ser Cys Pro Ile Pro Ala Ile Ala Asn Asp Ala Glu Ala Leu Leu
      115      120      125
Met Ser Tyr Ser Lys Ala Thr Lys Lys Asn Ala Ala Leu Val Arg
      130      135      140

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&lt;210&gt;443

&lt;211&gt;467

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;443

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Met Gly Trp Val Asp Cys Ile Trp Glu Ser Phe Ile Asn Lys Glu Ser
      1      5      10      15
Gly Met Leu Thr Cys Asn Glu Cys Thr Thr Trp Glu Gln Phe Leu Asn
      20      25      30
Tyr Val Lys Thr Arg Cys Ser Lys Thr Ala Phe Glu Asn Trp Ile Ser
      35      40      45
Pro Ile Gln Val Leu Glu Glu Thr Gln Glu Lys Ile Arg Leu Glu Val
      50      55      60
Pro Asn Ile Phe Val Gln Asn Tyr Leu Leu Asp Asn Tyr Lys Arg Asp
      65      70      75      80
Leu Cys Ser Phe Val Pro Leu Asp Val His Gly Glu Pro Ala Leu Glu
      85      90      95
Phe Val Val Ala Glu His Lys Lys Pro Ser Ala Pro Val Ala Ser Gln
      100      105      110
Lys Glu Ser Asn Glu Gly Ile Ser Glu Val Phe Glu Glu Thr Lys Asp
      115      120      125
Phe Glu Leu Lys Leu Asn Leu Ser Tyr Arg Phe Asp Asn Phe Ile Glu

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130 135 140  
 Gly Pro Ser Asn Gln Phe Val Lys Ser Ala Ala Val Gly Ile Ala Gly  
 145 150 155 160  
 Lys Pro Gly Arg Ser Tyr Asn Pro Leu Phe Ile His Gly Gly Val Gly  
 165 170 175  
 Leu Gly Lys Thr His Leu Leu His Ala Val Gly His Tyr Val Arg Glu  
 180 185 190  
 His His Lys Asn Leu Arg Ile His Cys Ile Thr Thr Glu Ala Phe Ile  
 195 200 205  
 Asn Asp Leu Val Tyr His Leu Lys Ser Lys Ser Val Asp Lys Met Lys  
 210 215 220  
 Asn Phe Tyr Arg Ser Leu Asp Leu Leu Leu Val Asp Asp Ile Gln Phe  
 225 230 235 240  
 Leu Gln Asn Arg Gln Asn Phe Glu Glu Glu Phe Cys Asn Thr Phe Glu  
 245 250 255  
 Thr Leu Ile Asn Leu Ser Lys Gln Ile Val Ile Thr Ser Asp Lys Pro  
 260 265 270  
 Pro Ser Gln Leu Lys Leu Ser Glu Arg Ile Ile Ala Arg Met Glu Trp  
 275 280 285  
 Gly Leu Val Ala His Val Gly Ile Pro Asp Leu Glu Thr Arg Val Ala  
 290 295 300  
 Ile Leu Gln His Lys Ala Glu Gln Lys Gly Leu Leu Ile Pro Asn Glu  
 305 310 315 320  
 Met Ala Phe Tyr Ile Ala Asp His Ile Tyr Gly Asn Val Arg Gln Leu  
 325 330 335  
 Glu Gly Ala Ile Asn Lys Leu Thr Ala Tyr Cys Arg Leu Phe Gly Lys  
 340 345 350  
 Ser Leu Thr Glu Thr Thr Val Arg Glu Thr Leu Lys Glu Leu Phe Arg  
 355 360 365  
 Ser Pro Thr Lys Gln Lys Ile Ser Val Glu Thr Ile Leu Lys Ser Val  
 370 375 380  
 Ala Thr Val Phe Gln Val Lys Leu Asn Asp Leu Lys Gly Asn Ser Arg  
 385 390 395 400  
 Ser Lys Asp Leu Val Leu Ala Arg Gln Ile Ala Met Tyr Leu Ala Lys  
 405 410 415  
 Thr Leu Ile Thr Asp Ser Leu Val Ala Ile Gly Ala Ala Phe Gly Lys  
 420 425 430  
 Thr His Ser Thr Val Leu Tyr Ala Cys Lys Thr Ile Glu His Lys Leu  
 435 440 445  
 Gln Asn Asp Glu Thr Leu Lys Arg Gln Val Asn Leu Cys Lys Asn His  
 450 455 460  
 Ile Val Gly  
 465

&lt;210&gt;444

&lt;211&gt;195

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;444

Met Phe Arg Arg Thr Gly Lys Gly Pro Phe Glu Asp Val Gln Thr Leu  
 1 5 10 15  
 Tyr Glu Glu Glu Thr Ser Ser Pro Ser Ser Tyr Ser Pro Tyr Ser Arg  
 20 25 30  
 Ser Glu Arg Pro Glu Thr Pro Pro Ser Leu Phe Asp Asn Pro Lys Ala  
 35 40 45  
 Ser Glu Ala Arg Pro Leu Asn His Asn Leu Thr Glu Glu Ser Ser Leu  
 50 55 60  
 Pro Gln Trp Ser Ser Thr Pro Arg Thr Glu Ser Leu Leu Pro Leu Glu  
 65 70 75 80  
 Glu Pro Glu Thr Thr Leu Gly Glu Gly Val Thr Phe Lys Gly Glu Leu  
 85 90 95  
 Ala Phe Glu Arg Leu Leu Arg Ile Asp Gly Thr Phe Glu Gly Ile Leu  
 100 105 110  
 Val Ser Lys Gly Lys Ile Ile Ile Gly Pro Lys Gly Val Val Lys Ala  
 115 120 125

Asp Ile Gln Leu Gln Glu Ala Ile Ile Glu Gly Val Val Glu Gly Asn  
 130 135 140  
 Ile Thr Val Ser Gly Lys Val Glu Leu Arg Gly Gly Ala Ile Ile Lys  
 145 150 155 160  
 Gly Asp Ile Gln Ala Asn Thr Leu Cys Val Asp Glu Gly Val Arg Ile  
 165 170 175  
 Leu Gly Tyr Leu Ala Ile Ala Gly Ile Thr Asp His Ser Glu Arg Glu  
 180 185 190  
 Arg Asp Leu  
 195

&lt;210&gt;445

&lt;211&gt;192

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;445

Met Val Leu Phe Ser Leu Leu Phe Pro Lys Leu Cys Tyr Gly Cys Gln  
 1 5 10 15  
 Ala Pro Gly Ala Tyr Phe Cys Ser Asn Cys Leu Glu Lys Leu Leu Val  
 20 25 30  
 Glu Asp Arg Glu Gly Arg Cys Leu His Cys Phe Arg Tyr Leu Gly Ser  
 35 40 45  
 Ser Glu Thr Arg Leu Cys Ser Gln Cys Ser Pro Ser Ser Gln Leu Gln  
 50 55 60  
 Ala Phe Ser Leu Tyr Leu Pro Ser Gln Thr Ala Leu Ser Val Tyr Ala  
 65 70 75 80  
 Arg Ala Cys Glu Gly Lys Arg Pro Ala Leu Gln Phe Phe Ser Lys Ser  
 85 90 95  
 Ile Ala Phe Glu Leu Ala Ser Leu Asp Glu Thr Pro Ser Cys Ile Ala  
 100 105 110  
 Tyr Ile Thr Ser Thr Ile Ser Arg Lys Ile Val Val Glu Val Ala Lys  
 115 120 125  
 Leu Glu Lys Leu Leu Arg Ile Pro Leu Trp Pro Trp Leu Pro Lys Lys  
 130 135 140  
 Arg Gln Ile Glu Lys Leu Pro Lys Gly Glu Gly Ile Cys Phe Leu Ser  
 145 150 155 160  
 Ala Tyr Pro Leu Ser Gln Lys Trp Met Gln Thr Ile Val Gly Gly Ser  
 165 170 175  
 Ala Ser Pro Leu Val Ser Ile Ser Leu Phe Leu Ser Gln Asn Asp Gln  
 180 185 190

&lt;210&gt;446

&lt;211&gt;517

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;446

Val Phe Glu Arg Val Glu Ala Ser Thr Phe Leu Ser Ile Thr Met Leu  
 1 5 10 15  
 Lys Lys Phe Ile Asn Ser Leu Trp Lys Leu Cys Gln Gln Asp Lys Tyr  
 20 25 30  
 Gln Arg Phe Thr Pro Ile Val Asp Ala Ile Asp Thr Phe Cys Tyr Glu  
 35 40 45  
 Pro Ile Glu Thr Pro Ser Lys Pro Pro Phe Ile Arg Asp Ser Val Asp  
 50 55 60  
 Val Lys Arg Trp Met Met Leu Val Val Ile Ala Leu Phe Pro Ala Thr  
 65 70 75 80  
 Phe Val Ala Ile Trp Asn Ser Gly Leu Gln Ser Ile Val Tyr Ser Ser  
 85 90 95  
 Gly Asn Pro Val Leu Met Glu Gln Phe Leu His Ile Ser Gly Phe Gly  
 100 105 110  
 Ser Tyr Leu Ser Phe Val Tyr Lys Glu Ile His Ile Val Pro Ile Leu  
 115 120 125  
 Trp Glu Gly Leu Lys Ile Phe Ile Pro Leu Leu Thr Ile Ser Tyr Val  
 130 135 140  
 Val Gly Gly Thr Cys Glu Val Leu Phe Ala Val Val Arg Gly His Lys  
 145 150 155 160

Ile Ala Glu Gly Leu Leu Val Thr Gly Ile Leu Tyr Pro Leu Thr Leu  
 165 170 175  
 Pro Pro Thr Ile Pro Tyr Trp Met Ala Ala Leu Gly Ile Ala Phe Gly  
 180 185 190  
 Ile Val Val Ser Lys Glu Leu Phe Gly Gly Thr Gly Met Asn Ile Leu  
 195 200 205  
 Asn Pro Ala Leu Ser Gly Arg Ala Phe Leu Phe Phe Thr Phe Pro Ala  
 210 215 220  
 Lys Met Ser Gly Asp Val Trp Val Gly Ser Asn Pro Gly Val Ile Lys  
 225 230 235 240  
 Asp Ser Leu Met Lys Met Asn Ser Ser Thr Gly Lys Val Leu Ile Asp  
 245 250 255  
 Gly Phe Ser Gln Ser Thr Cys Leu Gln Thr Leu Asn Ser Thr Pro Pro  
 260 265 270  
 Ser Val Lys Arg Leu His Val Asp Ala Ile Ala Ala Asn Met Leu His  
 275 280 285  
 Ile Pro His Val Pro Thr Gln Asp Val Ile His Ser Gln Phe Ser Leu  
 290 295 300  
 Trp Thr Glu Thr His Pro Gly Trp Val Leu Asp Asn Leu Thr Leu Thr  
 305 310 315 320  
 Gln Leu Gln Thr Phe Val Thr Ala Pro Val Ala Glu Gly Gly Leu Gly  
 325 330 335  
 Leu Leu Pro Thr Gln Phe Asp Ser Ala Tyr Ala Ile Thr Asp Val Ile  
 340 345 350  
 Tyr Gly Ile Gly Lys Phe Ser Ala Gly Asn Leu Phe Trp Gly Asn Ile  
 355 360 365  
 Ile Gly Ser Leu Gly Glu Thr Ser Thr Phe Ala Cys Leu Leu Gly Ala  
 370 375 380  
 Ile Phe Leu Ile Val Thr Gly Ile Ala Ser Trp Arg Thr Met Ala Ala  
 385 390 395 400  
 Phe Gly Ile Gly Ala Phe Leu Thr Gly Trp Leu Phe Lys Phe Ile Ser  
 405 410 415  
 Val Leu Ile Val Gly Gln Asn Gly Ala Trp Ala Pro Ala Arg Phe Phe  
 420 425 430  
 Ile Pro Ala Tyr Arg Gln Leu Phe Leu Gly Gly Leu Ala Phe Gly Leu  
 435 440 445  
 Val Phe Met Ala Thr Asp Pro Val Ser Ser Pro Thr Met Lys Leu Gly  
 450 455 460  
 Lys Trp Ile Tyr Gly Phe Phe Ile Gly Phe Met Thr Ile Val Ile Arg  
 465 470 475 480  
 Leu Ile Asn Pro Ala Tyr Pro Glu Gly Val Met Leu Ala Ile Leu Leu  
 485 490 495  
 Gly Asn Val Phe Ala Pro Leu Ile Asp Tyr Phe Ala Val Arg Lys Tyr  
 500 505 510  
 Arg Lys Arg Gly Val  
 515

&lt;210&gt;447

&lt;211&gt;320

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;447

Met Ser Lys Gly Ser Ser Lys His Thr Val Arg Ile Asn Gln Thr Trp  
 1 5 10 15  
 Tyr Ile Val Ser Phe Ile Leu Gly Leu Ser Leu Phe Ala Gly Val Leu  
 20 25 30  
 Leu Ser Thr Ile Tyr Tyr Val Leu Ser Pro Ile Gln Glu Gln Ala Ala  
 35 40 45  
 Thr Phe Asp Arg Asn Lys Gln Met Leu Leu Ala Ala His Ile Leu Asp  
 50 55 60  
 Phe Lys Gly Arg Phe Gln Ile Gln Glu Lys Lys Glu Trp Val Pro Ala  
 65 70 75 80  
 Thr Phe Asp Lys Lys Thr Gln Leu Leu Glu Val Ala Thr Lys Lys Val  
 85 90 95  
 Ser Glu Val Ser Tyr Pro Glu Leu Glu Leu Tyr Ala Glu Arg Phe Val

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      100      105      110
Arg Pro Leu Leu Thr Asp Ala Gln Gly Lys Val Phe Ser Phe Glu Glu
      115      120      125
Lys Asn Leu Asn Pro Ile Glu Phe Phe Glu Lys Tyr Gln Glu Ser Pro
      130      135      140
Pro Cys Gln Gln Ser Pro Leu Pro Phe Tyr Val Ile Leu Glu Asn Thr
      145      150      155      160
Ser Arg Thr Glu Asn Met Ser Gly Ala Asp Val Ala Lys Asp Leu Ser
      165      170      175
Thr Val Gln Ala Leu Ile Phe Pro Ile Ser Gly Phe Gly Leu Trp Gly
      180      185      190
Pro Ile His Gly Tyr Leu Gly Val Lys Asn Asp Gly Asp Thr Val Leu
      195      200      205
Gly Thr Ala Trp Tyr Gln Gln Gly Glu Thr Pro Gly Leu Gly Ala Asn
      210      215      220
Ile Thr Asn Pro Glu Trp Gln Glu Gln Phe Tyr Gly Lys Lys Ile Phe
      225      230      235      240
Leu Gln Asp Ser Ser Gly Thr Thr Asn Phe Ala Thr Thr Asp Leu Gly
      245      250      255
Leu Glu Val Val Lys Gly Ser Val Arg Thr Thr Leu Gly Asp Ser Pro
      260      265      270
Lys Ala Leu Ser Ala Ile Asp Gly Ile Ser Gly Ala Thr Leu Thr Cys
      275      280      285
Asn Gly Val Thr Glu Ala Tyr Val Gln Ser Leu Ala Cys Tyr Arg Gln
      290      295      300
Leu Leu Ile Asn Phe Ser Asn Leu Thr His Glu Lys Lys Thr Gly Glu
      305      310      315      320

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&lt;210&gt;448

&lt;211&gt;223

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;448

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Met Thr Ser Lys Lys Ser Tyr Lys Ser Tyr Phe Phe Asp Pro Leu Trp
  1           5           10           15
Ser Asn Asn Gln Ile Leu Ile Ala Ile Leu Gly Ile Cys Ser Ala Leu
      20           25           30
Ala Val Thr Thr Thr Val Gln Thr Ala Ile Thr Met Gly Ile Ala Val
      35           40           45
Ser Ile Val Thr Gly Cys Ser Ser Phe Phe Val Ser Leu Leu Arg Lys
      50           55           60
Phe Thr Pro Asp Ser Val Arg Met Ile Thr Gln Leu Ile Ile Ile Ser
      65           70           75           80
Leu Phe Val Ile Val Ile Asp Gln Phe Leu Lys Ala Phe Phe Phe Asp
      85           90           95
Ile Ser Lys Thr Leu Ser Val Phe Val Gly Leu Ile Ile Thr Asn Cys
      100          105          110
Xaa Xaa Met Gly Arg Ser Glu Ser Leu Ala Arg His Val Thr Pro Ile
      115          120          125
Pro Ala Phe Leu Asp Gly Phe Ala Ser Gly Leu Gly Tyr Gly Trp Val
      130          135          140
Leu Leu Val Ile Gly Val Ile Arg Glu Leu Phe Gly Phe Gly Thr Pro
      145          150          155          160
Tyr Gly Val Ser His His Pro Ser Ile Cys Tyr Ala Ser Glu Thr His
      165          170          175
Pro Asp Gly Tyr Gln Asn Leu Ser Leu Met Val Leu Ala Pro Ser Ala
      180          185          190
Phe Phe Leu Leu Gly Ile Met Ile Trp Leu Val Asn Ile Arg Asp Ser
      195          200          205
Lys Glu Lys Xaa Val Val Tyr Val Val Arg Cys Val Tyr Leu Ala
      210          215          220

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&lt;210&gt;449

&lt;211&gt;256

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;449

Met Trp Leu Gly Ala Tyr Thr Trp Leu Asn Val Phe Gly Ile Leu Leu  
 1 5 10 15  
 Gln Ala Ala Phe Ile Gln Asn Ile Leu Leu Ala Asn Phe Leu Gly Met  
 20 25 30  
 Cys Ser Tyr Leu Ala Cys Ser Thr Arg Val Ser Thr Ala Asn Gly Leu  
 35 40 45  
 Gly Met Ser Val Ala Leu Val Leu Thr Val Thr Gly Ser Ile Asn Trp  
 50 55 60  
 Phe Val His Ala Phe Ile Thr Gly Pro Lys Ala Leu Thr Trp Ile Ser  
 65 70 75 80  
 Pro Ser Leu Ala Ser Val Asn Leu Gly Phe Leu Glu Leu Ile Ile Phe  
 85 90 95  
 Ile Val Val Ile Ala Ala Phe Thr Gln Ile Leu Glu Leu Leu Leu Glu  
 100 105 110  
 Lys Val Ser Arg Asn Leu Tyr Leu Ser Leu Gly Ile Phe Leu Pro Leu  
 115 120 125  
 Ile Ala Val Asn Cys Ala Ile Leu Gly Gly Val Leu Phe Gly Ile Thr  
 130 135 140  
 Arg Ser Tyr Pro Phe Ile Pro Met Met Ile Phe Ser Leu Gly Ala Gly  
 145 150 155 160  
 Cys Gly Trp Trp Leu Ala Ile Val Ile Leu Ala Thr Ile Lys Glu Lys  
 165 170 175  
 Leu Ala Tyr Ser Asp Ile Pro Lys Asn Leu Gln Gly Met Gly Ile Ser  
 180 185 190  
 Phe Ile Thr Thr Gly Leu Ile Ala Met Ala Phe Met Ser Leu Thr Gly  
 195 200 205  
 Ile Asp Ile Ser Lys Pro Ser Ala Lys Ile Gln Arg Ala Pro Leu Glu  
 210 215 220  
 Thr Glu Val Val Glu Asn Thr Thr Asn Pro Leu Lys Glu Ser Ser Ser  
 225 230 235 240  
 Lys His Gln Pro Ser Ile Ser Lys Ala Arg Thr Gln Arg Arg Ser Leu  
 245 250 255

&lt;210&gt;450

&lt;211&gt;113

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;450

Lys Ile Met Thr Thr Leu Pro Lys Tyr Val Pro Arg Ser Arg Gln Asn  
 1 5 10 15  
 Pro Asp Thr Leu Thr Phe Leu Lys Arg Tyr Ser Ser Val Leu Leu His  
 20 25 30  
 Ser Glu Asn Ser Leu Ser Tyr Arg Ile Phe Ala Lys Val Leu Ala Ile  
 35 40 45  
 Leu Leu Thr Ser Leu Ala Val Ala Phe Ala Val Thr Leu Phe Ser Cys  
 50 55 60  
 Glu Gly Ser Gln Leu Arg Leu Cys Ala Leu Tyr Ile Gly Ile Ala Leu  
 65 70 75 80  
 Ala Ile Cys Val Leu Leu Thr Ile Val Val Tyr Cys Ile Ala Ser Lys  
 85 90 95  
 Ile Ala Thr Ala Cys Lys Lys Pro Pro Ser Ile Ser Arg Ile Glu Ile  
 100 105 110  
 Val

&lt;210&gt;451

&lt;211&gt;436

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;451

Gly Glu Xaa Ala Tyr Thr Lys Ile Ser Lys Asn Lys Glu Phe Ser Leu  
 1 5 10 15  
 Gly Phe Glu Glu Phe Val Asn Ser Tyr Phe Gln Phe Leu Glu Ile Ser  
 20 25 30  
 Glu Ser Glu Phe Phe Asn Met Tyr Arg Asp Ile Leu Leu Cys Lys Arg

35 40 45  
 Ala Leu Leu Leu Gln Gly Gly Val Ser Phe Asp Phe Gln Pro Leu  
 50 55 60  
 Thr Thr Phe Phe Val Gln Gly Lys Asp Ser Ile Gln Val Glu Phe Phe  
 65 70 75 80  
 Arg Leu Pro Lys Glu Tyr Ser Phe Lys Thr Lys Gln Glu Leu Lys Ala  
 85 90 95  
 Phe Glu Val Tyr Leu Lys Leu Val Ser Leu Pro Lys Ser Asp Ser Leu  
 100 105 110  
 Asp Val Pro Asn Glu Ile Leu Pro Ile Ala Thr Ile Lys Ala Lys Glu  
 115 120 125  
 Pro Arg Leu Val Gly Arg Arg Phe Ser Ile Asp Tyr Lys Arg Val Ala  
 130 135 140  
 Leu Gln Asp Leu Ala Ala Thr Val Pro Met Val Glu Val Leu His Trp  
 145 150 155 160  
 Gln Gln Asn Ser Glu His Phe Gln Glu Ile Leu Gln Gln Phe Pro Asp  
 165 170 175  
 Val Glu Thr Cys Gln Ser Tyr Lys Asp Phe Gln His Leu Lys Pro Ala  
 180 185 190  
 Leu Arg Asp Lys Ile Ser Leu Phe Thr Arg Lys Glu Ile Leu Arg Ala  
 195 200 205  
 Arg Pro Glu Arg Ile Leu Gln Ser Leu Gln Gln Val Pro Lys Gln Ser  
 210 215 220  
 Gln Glu Val Leu Leu Ser Ala Gly Lys Asn Ser Ala Leu Pro Gly Ile  
 225 230 235 240  
 Ser Asp Gly Gln Gln Leu Ala Lys Val Leu Leu Glu Asn Glu Val Leu  
 245 250 255  
 Asp Leu Tyr Ser Gln Asp Ala Glu Thr Tyr Tyr Thr Ile Ile Val Asn  
 260 265 270  
 Ser Ser Phe Glu Lys Glu Glu Val Leu Pro Tyr Arg Glu Val Leu Lys  
 275 280 285  
 Arg Asp Leu Ala Ser Gln Leu Leu Thr Ser His Gly His Leu Val Asp  
 290 295 300  
 Met Glu Arg Leu Glu Ser Ala Leu Arg Thr Arg Tyr Pro Gly Glu Glu  
 305 310 315 320  
 Gly Ala Ser Leu Trp Gln Arg Arg Leu Trp Lys Val Val Glu Asn His  
 325 330 335  
 Arg Leu Gly Arg His Leu Glu Gly Ser Phe Ser Trp Ser Leu Asp Arg  
 340 345 350  
 Ser Leu Lys Thr Phe Ser Arg Gly Asp Lys Glu Leu Pro Gln Glu Phe  
 355 360 365  
 Asp Arg Ile Phe Ser Met Lys Val Gly Asp Tyr Ser Ser Val Phe Met  
 370 375 380  
 Ser Pro Asn Glu Gly Pro Cys Tyr Tyr Gln Cys Leu Ser His Leu Leu  
 385 390 395 400  
 Tyr Asp Arg Pro Ala Ser Val Asp Lys Leu Phe Leu Ala Lys Ser Gln  
 405 410 415  
 Leu Asp Glu Glu Leu Leu Gly Ser Tyr Met Glu Arg Phe Ile Glu Gln  
 420 425 430  
 Gly Val Val Arg  
 435  
 <210>452  
 <211>84  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>452  
 Ser Gln Ala Leu Phe Arg Arg Glu Lys Val Pro Ser Leu Cys Ala Ser  
 1 5 10 15  
 Thr Asn Val Gly Val Pro Gln Gln Met Phe Ala Leu Pro Pro Asp Glu  
 20 25 30  
 Ala Leu Ser Arg Gly Lys Asp Leu Arg Leu Phe Gly Tyr Gln Thr Ile  
 35 40 45  
 Gln Asp Trp Phe Gly Asp Ala Tyr Leu Ser Ala Ala Val Glu Leu Leu  
 50 55 60

Ile Arg Phe Ile Asp Glu Gln Lys Lys Val Leu Pro Arg Pro Ser Lys  
 65 70 75 80  
 Gln Glu Ser Ser

&lt;210&gt;453

&lt;211&gt;269

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;453

Arg Pro Trp Val Arg Ile Tyr Gln Gln Asp Leu Phe Cys Arg Leu Cys  
 1 5 10 15  
 Arg Asp Pro Ala Trp Phe Phe Ser Leu Leu Ser Phe Thr Leu Arg Phe  
 20 25 30  
 Tyr Cys Leu Gly Arg Gly Trp Thr Leu Leu Ser Phe Phe Tyr Lys His  
 35 40 45  
 Gln Lys Lys Phe Ile Gly Ile Val Ile Ala Val Val Cys Val Ser Gly  
 50 55 60  
 Ile Gly Val Gly Trp Gly Arg Phe Ser Arg Lys Gly Ser Ala Glu Ser  
 65 70 75 80  
 Thr Ser Arg Arg Thr Val Phe Thr Thr Ala Ser Gly Lys Arg Tyr Val  
 85 90 95  
 Glu Lys Asp Phe Met Ala Met Lys Lys Phe Phe Ala His Glu Ala Tyr  
 100 105 110  
 Pro Phe Thr Gly Asn Pro Arg Ala Trp Asn Phe Ile Asn Glu Gly Leu  
 115 120 125  
 Leu Thr Asp Tyr Phe Leu Thr Thr Arg Val Gly Glu Lys Leu Phe Leu  
 130 135 140  
 Lys Val Tyr His Pro Gly Glu Lys Ile Phe Ser Lys Glu Lys Ala Tyr  
 145 150 155 160  
 Gln Pro Tyr Arg Arg Phe Asp Ala Pro Phe Ile Ser Ser Glu Glu Val  
 165 170 175  
 Trp Lys Ser Ser Ala Pro Gln Leu Leu Glu Ile Leu Lys Val Phe Gln  
 180 185 190  
 Gln Ile Glu Asn Pro Ile Ser Lys Glu Gly Phe Leu Ala Arg Ala Lys  
 195 200 205  
 Leu Phe Leu Glu Glu Arg Arg Phe Pro His Tyr Val Leu Arg Gln Met  
 210 215 220  
 Leu Glu Tyr Arg Ser Lys Cys Leu Leu Phe Pro Gln Met Lys Pro Tyr  
 225 230 235 240  
 Leu Ala Gly Lys Thr Cys Gly Tyr Leu Ala Thr Arg Arg Phe Lys Thr  
 245 250 255  
 Gly Leu Gly Met Pro Thr Phe Leu Leu Leu Ser Ser  
 260 265

&lt;210&gt;454

&lt;211&gt;196

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;454

Ala Thr Gln Ser Trp Thr Gln Glu Tyr Leu Lys Leu Ile Gln Gly Ala  
 1 5 10 15  
 Arg Ser Ser Val Lys Leu Ala His Met Tyr Phe Ile Pro Lys Asp Glu  
 20 25 30  
 Leu Leu Asn Ala Leu Val Asp Val Ser His Asn His Gly Val His Leu  
 35 40 45  
 Ser Leu Ile Thr Asn Gly Cys His Glu Leu Ser Pro Ala Ile Thr Gly  
 50 55 60  
 Pro Tyr Ala Trp Gly Asn Arg Ile Asn Tyr Phe Ala Leu Leu Tyr Gly  
 65 70 75 80  
 Lys Arg Tyr Pro Leu Trp Lys Lys Trp Phe Cys Glu Lys Leu Lys Pro  
 85 90 95  
 Tyr Glu Arg Val Ser Ile Tyr Glu Phe Ala Ile Trp Glu Thr Gln Leu  
 100 105 110  
 His Lys Lys Cys Met Ile Ile Asp Asp Glu Ile Phe Val Ile Gly Ser  
 115 120 125



Tyr Asn Phe Gly Lys Lys Ser Asp Ala Phe Asp Tyr Glu Ser Ile Val  
 130 135 140  
 Val Ile Glu Ser Pro Glu Val Ala Ala Lys Ala Asn Lys Val Phe Asn  
 145 150 155 160  
 Lys Asp Ile Gly Leu Ser Ile Pro Val Ser His Gly Asp Ile Phe Ser  
 165 170 175  
 Trp Tyr Phe His Ser Val His His Thr Leu Gly His Leu Gln Leu Thr  
 180 185 190  
 Tyr Met Pro Ala  
 195

&lt;210&gt;455

&lt;211&gt;214

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;455

Arg Asp Gly Lys Ile Thr Ser Arg Leu Val Trp Ile Trp Phe Gln Ser  
 1 5 10 15  
 Ser Val Ala Asn Ile Ile Ile Gln Pro Thr Phe Thr Asp Ala Glu Asp  
 20 25 30  
 Gln Lys Leu Leu Lys Ala Leu Lys Glu Arg His Pro Asn Arg Phe Phe  
 35 40 45  
 Tyr Val Phe Thr Gly Cys Pro Pro Ser Thr Ser Ile Leu Ala Pro Asn  
 50 55 60  
 Val Ile Glu Met His Ile Lys Leu Ser Ile Ile Asp Gly Lys Tyr Cys  
 65 70 75 80  
 Ile Leu Gly Gly Thr Asn Phe Glu Glu Phe Met Cys Thr Pro Gly Asp  
 85 90 95  
 Glu Val Pro Glu Lys Val Asp Asn Pro Arg Leu Phe Val Ser Gly Val  
 100 105 110  
 Arg Arg Pro Leu Ala Phe Arg Asp Gln Asp Ile Met Leu Arg Ser Thr  
 115 120 125  
 Ala Phe Gly Leu Gln Leu Arg Glu Glu Tyr His Lys Gln Phe Ala Met  
 130 135 140  
 Trp Asp Tyr Tyr Ala His His Met Trp Phe Ile Asp Asn Pro Glu Gln  
 145 150 155 160  
 Phe Ala Gly Ala Cys Pro Pro Leu Thr Leu Glu Gln Ala Glu Glu Thr  
 165 170 175  
 Val Phe Pro Gly Phe Asp Lys His Glu Asp Leu Val Leu Val Asp Ser  
 180 185 190  
 Ser Lys Ile Arg Ile Val Leu Gly Pro His Asp Lys Gln Pro Asn  
 195 200 205  
 Pro Gly Leu Lys Asn Ile  
 210

&lt;210&gt;456

&lt;211&gt;95

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;456

Gly Val Met Met Ser Arg Leu Arg Phe Arg Leu Ala Ala Leu Gly Ile  
 1 5 10 15  
 Phe Phe Ile Leu Leu Val Pro Asn Ser Val Ser Ala Lys Thr Ile Val  
 20 25 30  
 Ala Ser Asp Lys Glu Lys Val Gly Val Leu Val Tyr Asp Asn Ser Val  
 35 40 45  
 Glu Ala Phe Gln Gln Ile Leu Asp Cys Ile Asp His Ala Asn Phe Tyr  
 50 55 60  
 Val Glu Leu Cys Pro Cys Met Thr Gly Gly Arg Thr Leu Lys Glu Met  
 65 70 75 80  
 Val Arg Ser Pro Arg Gly Ser Tyr Gly Ser Gly Ser Arg Ala Leu  
 85 90 95

&lt;210&gt;457

&lt;211&gt;244

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;457

Phe Tyr Val Cys Tyr Met Lys Val Arg Ile Val Asp Ser Gly Lys Ser  
 1 5 10 15  
 Ser Ala Ala Ser His Met Ala Lys Asp Arg Asp Leu Leu Glu Ser Leu  
 20 25 30  
 Gln Asp Gly Glu Leu Ile Leu His Leu Tyr Glu Trp Glu Asn Pro Cys  
 35 40 45  
 Ser Leu Thr Tyr Gly His Phe Met Arg Pro Glu Lys Phe Leu Leu Ser  
 50 55 60  
 Asn Tyr Ala Asp Leu Gly Leu Asp Ala Ala Val Arg Pro Thr Gly Gly  
 65 70 75 80  
 Gly Phe Val Phe His Lys Gly Asp Tyr Ala Phe Ser Val Leu Met Ser  
 85 90 95  
 Ala Thr His Pro Ser Tyr Ser Ser Ser Val Leu Glu Asn Tyr His Thr  
 100 105 110  
 Val Asn Ser Phe Val Ala Lys Val Leu Glu Lys Val Phe Arg Ile Gln  
 115 120 125  
 Gly Met Leu Ala Pro Glu Asp Glu Asn Ser Ser Ser Arg Asp Ser Gly  
 130 135 140  
 Asn Phe Cys Met Ala Lys Thr Ser Lys Tyr Asp Val Leu Xaa Trp Gly  
 145 150 155 160  
 Gln Glu Asp Arg Gly Ala Ala Gln Arg Lys Val Gln Gln Gly Phe Leu  
 165 170 175  
 His Gln Gly Ser Leu Phe Leu Ser Gly Ser Ser Ser Glu Phe Tyr Gln  
 180 185 190  
 Arg Phe Leu Lys Pro Glu Val Leu Glu Glu Ile Ile Glu Gln Ile Gln  
 195 200 205  
 Ile His Ala Phe Phe Pro Leu Gly Leu Glu Ala Ala Asp Glu Val Leu  
 210 215 220  
 Gln Glu Ala Arg Gln Gln Val Lys Glu Ala Phe Ile Lys Leu Phe Cys  
 225 230 235 240  
 Gly Glu Gly Leu

&lt;210&gt;458

&lt;211&gt;845

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;458

Met Phe Glu Lys Phe Thr Asn Arg Ala Lys Gln Val Ile Lys Leu Ala  
 1 5 10 15  
 Lys Lys Glu Ala Gln Arg Leu Asn His Asn Tyr Leu Gly Thr Glu His  
 20 25 30  
 Ile Leu Leu Gly Leu Leu Lys Leu Gly Gln Gly Val Ala Val Asn Val  
 35 40 45  
 Leu Arg Asn Leu Gly Ile Asp Phe Asp Thr Ala Arg Gln Glu Val Glu  
 50 55 60  
 Arg Leu Ile Gly Tyr Gly Pro Glu Ile Gln Val Tyr Gly Asp Ala Ala  
 65 70 75 80  
 Leu Thr Gly Arg Val Lys Lys Ser Phe Glu Ser Ala Asn Glu Glu Ala  
 85 90 95  
 Ser Leu Leu Glu His Asn Tyr Val Gly Thr Glu His Leu Leu Leu Gly  
 100 105 110  
 Ile Leu His Gln Ser Asp Ser Val Ala Leu Gln Val Leu Glu Asn Leu  
 115 120 125  
 His Ile Asp Pro Arg Glu Val Arg Lys Glu Ile Leu Lys Glu Leu Glu  
 130 135 140  
 Thr Phe Asn Leu Gln Leu Pro Pro Ser Ser Ser Ser Ser Ser Ser  
 145 150 155 160  
 Ser Arg Ser Asn Pro Ser Ser Ser Lys Ser Pro Leu Gly Gln Ser Leu  
 165 170 175  
 Gly Ser Asp Lys Asn Glu Lys Leu Ser Ala Leu Lys Ala Tyr Gly Tyr  
 180 185 190  
 Asp Leu Thr Glu Met Val Arg Glu Ser Lys Leu Asp Pro Val Ile Gly  
 195 200 205

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Arg Ser Ser Glu Val Glu Arg Leu Ile Leu Ile Leu Cys Arg Arg Arg
210 215 220
Lys Asn Asn Pro Val Leu Ile Gly Glu Ala Gly Val Gly Lys Thr Ala
225 230 235 240
Ile Val Glu Gly Leu Ala Gln Lys Ile Ile Leu Asn Glu Val Pro Asp
245 250 255
Ala Leu Arg Lys Lys Arg Leu Ile Thr Leu Asp Leu Ala Leu Met Ile
260 265 270
Ala Gly Thr Lys Tyr Arg Gly Gln Phe Glu Glu Arg Ile Lys Ala Val
275 280 285
Met Asp Glu Val Arg Lys His Gly Asn Ile Leu Leu Phe Ile Asp Glu
290 295 300
Leu His Thr Ile Val Gly Ala Gly Ala Ala Glu Gly Ala Ile Asp Ala
305 310 315 320
Ser Asn Ile Leu Lys Pro Ala Leu Ala Arg Gly Glu Ile Gln Cys Ile
325 330 335
Gly Ala Thr Thr Ile Asp Glu Tyr Arg Lys His Ile Glu Lys Asp Ala
340 345 350
Ala Leu Glu Arg Arg Phe Gln Lys Ile Val Val His Pro Pro Ser Val
355 360 365
Asp Glu Thr Ile Glu Ile Leu Arg Gly Leu Lys Lys Lys Tyr Glu Glu
370 375 380
His His Asn Val Phe Ile Thr Glu Glu Ala Leu Lys Ala Ala Ala Thr
385 390 395 400
Leu Ser Asp Gln Tyr Val His Gly Arg Phe Leu Pro Asp Lys Ala Ile
405 410 415
Asp Leu Leu Asp Glu Ala Gly Ala Arg Val Arg Val Asn Thr Met Gly
420 425 430
Gln Pro Thr Asp Leu Met Lys Leu Glu Ala Glu Ile Glu Asn Thr Lys
435 440 445
Leu Ala Lys Glu Gln Ala Ile Gly Thr Gln Glu Tyr Glu Lys Ala Ala
450 455 460
Gly Leu Arg Asp Glu Glu Lys Lys Leu Arg Glu Arg Leu Gln Ser Met
465 470 475 480
Lys Gln Glu Trp Glu Asn His Lys Glu Glu His Gln Val Pro Val Asp
485 490 495
Glu Glu Ala Val Ala Gln Val Val Ser Leu Gln Thr Gly Ile Pro Ser
500 505 510
Ala Arg Leu Thr Glu Ala Glu Ser Glu Lys Leu Leu Lys Leu Glu Asp
515 520 525
Thr Leu Arg Arg Lys Val Ile Gly Gln Asn Asp Ala Val Thr Ser Ile
530 535 540
Cys Arg Ala Ile Arg Arg Ser Arg Thr Gly Ile Lys Asp Pro Asn Arg
545 550 555 560
Pro Thr Gly Ser Phe Leu Phe Leu Gly Pro Thr Gly Val Gly Lys Ser
565 570 575
Leu Leu Ala Gln Gln Ile Ala Ile Glu Met Phe Gly Gly Glu Asp Ala
580 585 590
Leu Ile Gln Val Asp Met Ser Glu Tyr Met Glu Lys Phe Ala Ala Thr
595 600 605
Lys Met Met Gly Ser Pro Pro Gly Tyr Val Gly His Glu Glu Gly Gly
610 615 620
His Leu Thr Glu Gln Val Arg Arg Arg Pro Tyr Cys Val Val Leu Phe
625 630 635 640
Asp Glu Ile Glu Lys Ala His Pro Asp Ile Met Asp Leu Met Leu Gln
645 650 655
Ile Leu Glu Gln Gly Arg Leu Thr Asp Ser Phe Gly Arg Lys Val Asp
660 665 670
Phe Arg His Ala Ile Ile Ile Met Thr Ser Asn Leu Gly Ala Asp Leu
675 680 685
Ile Arg Lys Ser Gly Glu Ile Gly Phe Gly Leu Lys Ser His Met Asp
690 695 700
Tyr Lys Val Ile Gln Glu Lys Ile Glu His Ala Met Lys Lys His Leu
705 710 715 720

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Lys Pro Glu Phe Ile Asn Arg Leu Asp Glu Ser Val Ile Phe Arg Pro  
 725 730 735  
 Leu Glu Lys Glu Ser Leu Ser Glu Ile Ile His Leu Glu Ile Asn Lys  
 740 745 750  
 Leu Asp Ser Arg Leu Lys Asn Tyr Gln Met Ala Leu Asn Ile Pro Asp  
 755 760 765  
 Ser Val Ile Ser Phe Leu Val Thr Lys Gly His Ser Pro Glu Met Gly  
 770 775 780  
 Ala Arg Pro Leu Arg Arg Val Ile Glu Gln Tyr Leu Glu Asp Pro Leu  
 785 790 795 800  
 Ala Glu Leu Leu Leu Lys Glu Ser Cys Arg Gln Glu Ala Arg Lys Leu  
 805 810 815  
 Arg Ala Thr Leu Val Glu Asn Arg Val Ala Phe Glu Arg Glu Glu Glu  
 820 825 830  
 Glu Gln Glu Ala Ala Leu Pro Ser Pro His Leu Glu Ser  
 835 840 845  
 <210>459  
 <211>374  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>459  
 Asn Leu Thr Leu Pro Met Arg Arg Gln Val Arg Glu Ile Met Gln Gln  
 1 5 10 15  
 Thr Val Ile Val Ala Met Ser Gly Gly Val Asp Ser Ser Val Val Ala  
 20 25 30  
 Tyr Leu Phe Lys Lys Phe Thr Asn Tyr Lys Val Ile Gly Leu Phe Met  
 35 40 45  
 Lys Asn Trp Glu Glu Asp Ser Glu Gly Gly Leu Cys Ser Ser Thr Lys  
 50 55 60  
 Asp Tyr Glu Asp Val Glu Arg Val Cys Leu Gln Leu Asp Ile Pro Tyr  
 65 70 75 80  
 Tyr Thr Val Ser Phe Ala Lys Glu Tyr Arg Glu Arg Val Phe Ala Arg  
 85 90 95  
 Phe Leu Lys Glu Tyr Ser Leu Gly Tyr Thr Pro Asn Pro Asp Ile Leu  
 100 105 110  
 Cys Asn Arg Glu Ile Lys Phe Asp Leu Leu Gln Lys Lys Val Gln Glu  
 115 120 125  
 Leu Gly Gly Asp Tyr Leu Ala Thr Gly His Tyr Cys Arg Leu Asn Thr  
 130 135 140  
 Glu Leu Gln Glu Thr Gln Leu Leu Arg Gly Cys Asp Pro Gln Lys Asp  
 145 150 155 160  
 Gln Ser Tyr Phe Leu Ser Gly Thr Pro Lys Ser Ala Leu His Asn Val  
 165 170 175  
 Leu Phe Pro Leu Gly Glu Met Asn Lys Thr Glu Val Arg Ala Ile Ala  
 180 185 190  
 Ala Gln Ala Ala Leu Pro Thr Ala Glu Lys Lys Asp Ser Thr Gly Ile  
 195 200 205  
 Cys Phe Ile Gly Lys Arg Pro Phe Lys Glu Phe Leu Glu Lys Phe Leu  
 210 215 220  
 Pro Asn Lys Thr Gly Asn Val Ile Asp Trp Asp Thr Lys Glu Ile Val  
 225 230 235 240  
 Gly Gln His Gln Gly Ser His Tyr Tyr Thr Ile Gly Gln Arg Arg Gly  
 245 250 255  
 Leu Asp Leu Gly Gly Ser Glu Lys Pro Xaa Tyr Val Val Gly Lys Asn  
 260 265 270  
 Ile Glu Glu Asn Ser Ile Tyr Ile Val Arg Gly Glu Asp His Pro Gln  
 275 280 285  
 Leu Tyr Leu Arg Glu Leu Thr Ala Arg Glu Leu Asn Trp Phe Thr Pro  
 290 295 300  
 Pro Lys Ser Gly Cys His Cys Ser Ala Lys Val Arg Tyr Arg Ser Pro  
 305 310 315 320  
 Asp Glu Ala Cys Thr Ile Asp Tyr Ser Ser Gly Asp Glu Val Lys Val  
 325 330 335  
 Arg Phe Ser Gln Pro Val Lys Ala Val Thr Pro Gly Gln Thr Ile Ala

340 345 350  
 Phe Tyr Gln Gly Asp Thr Cys Leu Gly Ser Gly Val Ile Asp Val Pro  
 355 360 365  
 Met Ile Pro Ser Glu Gly  
 370  
 <210>460  
 <211>185  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>460  
 Ile Ile Ser Ser Asn Asn Arg Val Leu Phe Val Ser Ser Thr Leu Asn  
 1 5 10 15  
 Gly Val Phe Pro Ser Ser Leu Pro Glu Glu Ser Ala Asp Leu Phe Ile  
 20 25 30  
 Thr Asn Lys Glu Ile Val Ala Leu Gly Glu Lys Gly Asn Val Phe Leu  
 35 40 45  
 Thr His Ser Ile Pro Met His Ile Ala Ala Ile Thr Ile Leu Val Ile  
 50 55 60  
 Val Ala Leu Ala Gly Ile Ala Ile Ile Cys Leu Gly Cys Tyr Ser Gln  
 65 70 75 80  
 Ser Ile Leu Leu Ile Ala Val Gly Ile Val Leu Thr Ile Leu Thr Leu  
 85 90 95  
 Leu Cys Leu Gln Ala Leu Val Gly Phe Ile Lys Phe Ile Arg Gln Leu  
 100 105 110  
 Pro Gln Gln Leu His Thr Thr Val Gln Phe Ile Arg Glu Lys Ile Arg  
 115 120 125  
 Pro Glu Ser Ser Leu Gln Leu Val Thr Asn Ala Gln Arg Lys Thr Thr  
 130 135 140  
 Gln Asp Thr Leu Lys Leu Tyr Glu Glu Leu Cys Asp Leu Ser Gln Lys  
 145 150 155 160  
 Glu Phe Lys Leu Gln Ser Thr Leu Tyr Gln Lys Arg Phe Glu Leu Ser  
 165 170 175  
 His Lys Asn Glu Lys Thr Asn Gln Asn  
 180 185  
 <210>461  
 <211>220  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>461  
 Leu Ala Thr Ile Arg Gly Asn Asn Met Ala Thr Ser Val Ala Pro Ser  
 1 5 10 15  
 Pro Val Pro Glu Ser Ser Pro Leu Ser His Ala Thr Glu Val Leu Asn  
 20 25 30  
 Leu Pro Asn Ala Tyr Ile Thr Gln Pro His Pro Ile Pro Ala Ala Pro  
 35 40 45  
 Trp Glu Thr Phe Arg Ser Lys Leu Ser Thr Lys His Thr Leu Cys Phe  
 50 55 60  
 Ala Leu Thr Leu Leu Leu Thr Leu Gly Gly Thr Ile Ser Ala Gly Tyr  
 65 70 75 80  
 Ala Gly Tyr Thr Gly Asn Trp Ile Ile Cys Gly Ile Gly Leu Gly Ile  
 85 90 95  
 Ile Val Leu Thr Leu Ile Leu Ala Leu Leu Leu Ala Ile Pro Leu Lys  
 100 105 110  
 Asn Lys Gln Thr Gly Thr Lys Leu Ile Asp Glu Ile Ser Gln Asp Ile  
 115 120 125  
 Ser Ser Ile Gly Ser Gly Phe Val Gln Arg Tyr Gly Leu Met Phe Ser  
 130 135 140  
 Thr Ile Lys Ser Val His Leu Pro Glu Leu Thr Thr Gln Asn Gln Glu  
 145 150 155 160  
 Lys Thr Arg Ile Leu Asn Glu Ile Glu Ala Lys Lys Glu Ser Ile Gln  
 165 170 175  
 Asn Leu Glu Leu Lys Ile Thr Glu Cys Gln Asn Lys Leu Ala Gln Lys  
 180 185 190  
 Gln Pro Lys Arg Lys Ser Ser Gln Lys Ser Phe Met Arg Ser Ile Lys

195 200 205  
 His Leu Ser Lys Asn Pro Val Ile Leu Phe Asp Cys  
 210 215 220  
 <210>462  
 <211>159  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>462  
 Arg Trp Arg Ile Leu Gln Asn Met Phe Lys Leu Leu Phe His Ile Ala  
 1 5 10 15  
 Ala Phe Ala Gly His Val Leu Ser Thr Pro Ile Phe Ile Val Gln Asp  
 20 25 30  
 Ala Cys Gly Ile Asp Glu Glu Ala Cys Lys Asn Pro Pro Pro Arg Pro  
 35 40 45  
 Phe Ser Ala Gln Val Gln Tyr Leu Lys Val Asn Asp Ala Lys Phe Lys  
 50 55 60  
 Lys Leu Pro His Gln Thr Ile Gly Tyr Arg Gln Tyr Asp Gly Thr Phe  
 65 70 75 80  
 Leu Cys Thr Leu Pro Ile Thr Glu His Ser Gly Leu Leu Phe Ser Thr  
 85 90 95  
 Gly Tyr Ile Gly Ala Asp Ile Gln Trp Lys Ser Ser Leu Pro Ile Ser  
 100 105 110  
 Glu Thr Asp Pro Asn Gly Leu Gly Trp Ala Thr Phe Gln Asp Thr Ser  
 115 120 125  
 Phe Tyr Asn Tyr Val Leu Leu Ser Leu Gly Ala Tyr Thr Leu Ser Xaa  
 130 135 140  
 Lys Lys Leu Ala Val Val Tyr His Ser Phe Trp Ala Cys Gly Ser  
 145 150 155  
 <210>463  
 <211>186  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>463  
 Glu Leu Ile His Ser Pro Leu Lys Asn Trp Gln Trp Ser Ile Ile Leu  
 1 5 10 15  
 Ser Gly Leu Val Asp Pro Lys Asn Ile Glu Met Gly Tyr Gly Leu Tyr  
 20 25 30  
 Gln Gly Val Leu Ser Gly Lys Tyr Gln Ala Thr Glu Lys Leu Ser Ala  
 35 40 45  
 Ile Phe Gly Val Ile Asn Glu Thr Gly Leu His Gln Glu Lys Ala Trp  
 50 55 60  
 Pro Leu Val Gly Val Ser Tyr Lys Ala Thr Asp Gln Leu Thr Leu Asn  
 65 70 75 80  
 Cys Ile Tyr Pro Val Asn Phe Ser Ile Asp Tyr Arg Ser Thr Ser Val  
 85 90 95  
 Cys Asn Leu Gly Leu Ala Tyr Arg Leu Thr Arg Phe Arg Lys Lys Leu  
 100 105 110  
 Tyr Lys Asn His Leu Ile Ser Ser Arg Gly Ile Phe Glu Tyr Gln Gly  
 115 120 125  
 Arg Glu Ile Glu Ala Asn Val Lys Leu Thr Pro Trp Pro Gly Ser Phe  
 130 135 140  
 Ile Lys Gly Phe Tyr Gly Trp Ser Ile Gly Asn Asp Ile Ser Ile Ala  
 145 150 155 160  
 Asp Asp His Asn Asn Asn Lys Thr Ser His Thr Phe Lys Thr Ser Ala  
 165 170 175  
 Phe Phe Gly Gly Ser Ala Val Met Asn Phe  
 180 185  
 <210>464  
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 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>464  
 Val Asp Ser Met Ser Gln Pro Pro Ile Asn Pro Leu Gly Gln Pro Gln  
 1 5 10 15

Val Pro Ala Ala Ala Ser Pro Ser Gly Gln Pro Ser Val Val Lys Arg  
 20 25 30  
 Leu Lys Thr Ser Ser Thr Gly Leu Phe Lys Arg Phe Ile Thr Val Pro  
 35 40 45  
 Asp Lys Tyr Pro Lys Met Arg Tyr Val Tyr Asp Thr Gly Ile Ile Ala  
 50 55 60  
 Leu Ala Ala Ile Ala Ile Leu Ser Ile Leu Leu Thr Ala Ser Gly Asn  
 65 70 75 80  
 Ser Leu Met Leu Tyr Ala Leu Ala Pro Ala Leu Ala Leu Gly Ala Leu  
 85 90 95  
 Gly Val Thr Leu Leu Ile Ser Asp Ile Leu Asp Ser Pro Lys Pro Arg  
 100 105 110  
 Lys Ser Val Arg Gln Ser Leu Leu Ser Ser Phe Leu Ser Leu Tyr  
 115 120 125

&lt;210&gt;465

&lt;211&gt;91

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;465

Tyr Ser Gly Gln Ser Glu Ala Lys Lys Ile Gly Glu Ala Ile Thr Ala  
 1 5 10 15  
 Ile Val Val Pro Ile Ile Val Leu Ala Ile Ala Ala Gly Leu Ile Ala  
 20 25 30  
 Gly Ala Phe Val Ala Ser Ser Gly Thr Met Leu Val Phe Ala Asn Pro  
 35 40 45  
 Met Phe Val Met Gly Leu Ile Thr Val Gly Leu Tyr Phe Met Ser Leu  
 50 55 60  
 Asn Lys Leu Thr Leu Asp Tyr Phe Arg Arg Glu His Leu Leu Arg Met  
 65 70 75 80  
 Glu Lys Lys Thr Gln Glu Thr Ala Asp Leu Phe  
 85 90

&lt;210&gt;466

&lt;211&gt;1132

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;466

Met Lys Tyr Ser Leu Pro Trp Leu Leu Thr Ser Ser Ala Leu Val Phe  
 1 5 10 15  
 Ser Leu His Pro Leu Met Ala Ala Asn Thr Asp Leu Ser Ser Ser Asp  
 20 25 30  
 Asn Tyr Glu Asn Gly Ser Ser Gly Ser Ala Ala Phe Thr Ala Lys Glu  
 35 40 45  
 Thr Ser Asp Ala Ser Gly Thr Thr Tyr Thr Leu Thr Ser Asp Val Ser  
 50 55 60  
 Ile Thr Asn Val Ser Ala Ile Thr Pro Ala Asp Lys Ser Cys Phe Thr  
 65 70 75 80  
 Asn Thr Gly Gly Ala Leu Ser Phe Val Gly Ala Asp His Ser Leu Val  
 85 90 95  
 Leu Gln Thr Ile Ala Leu Thr His Asp Gly Ala Ala Ile Asn Asn Thr  
 100 105 110  
 Asn Thr Ala Leu Ser Phe Ser Gly Phe Ser Ser Leu Leu Ile Asp Ser  
 115 120 125  
 Ala Pro Ala Thr Gly Thr Ser Gly Gly Lys Gly Ala Ile Cys Val Thr  
 130 135 140  
 Asn Thr Glu Gly Gly Thr Ala Thr Phe Thr Asp Asn Ala Ser Val Thr  
 145 150 155 160  
 Leu Gln Lys Asn Thr Ser Glu Lys Asp Gly Ala Ala Val Ser Ala Tyr  
 165 170 175  
 Ser Ile Asp Leu Ala Lys Thr Thr Thr Ala Ala Leu Leu Asp Gln Asn  
 180 185 190  
 Thr Ser Thr Lys Asn Gly Gly Ala Leu Cys Ser Thr Ala Asn Thr Thr  
 195 200 205  
 Val Gln Gly Asn Ser Gly Thr Val Thr Phe Ser Ser Asn Thr Ala Thr  
 210 215 220

Asp Lys Gly Gly Gly Ile Tyr Ser Lys Glu Lys Asp Ser Thr Leu Asp  
 225 230 235 240  
 Ala Asn Thr Gly Val Val Thr Phe Lys Ser Asn Thr Ala Lys Thr Gly  
 245 250 255  
 Gly Ala Trp Ser Ser Asp Asp Asn Leu Ala Leu Thr Gly Asn Thr Gln  
 260 265 270  
 Val Leu Phe Gln Glu Asn Lys Thr Thr Gly Ser Ala Ala Gln Ala Asn  
 275 280 285  
 Asn Pro Glu Gly Cys Gly Gly Ala Ile Cys Cys Tyr Leu Ala Thr Ala  
 290 295 300  
 Thr Asp Lys Thr Gly Leu Ala Ile Ser Gln Asn Gln Glu Met Ser Phe  
 305 310 315 320  
 Thr Ser Asn Thr Thr Thr Ala Asn Gly Gly Ala Ile Tyr Ala Thr Lys  
 325 330 335  
 Cys Thr Leu Asp Gly Asn Thr Thr Leu Thr Phe Asp Gln Asn Thr Ala  
 340 345 350  
 Thr Ala Gly Cys Gly Gly Ala Ile Tyr Thr Glu Thr Glu Asp Phe Ser  
 355 360 365  
 Leu Lys Gly Ser Thr Gly Thr Val Thr Phe Ser Thr Asn Thr Ala Lys  
 370 375 380  
 Thr Gly Gly Ala Leu Tyr Ser Lys Glu Asn Ser Ser Leu Thr Gly Asn  
 385 390 395 400  
 Thr Asn Leu Leu Phe Ser Gly Asn Lys Ala Thr Gly Pro Ser Asn Ser  
 405 410 415  
 Ser Ala Asn Gln Glu Gly Cys Gly Gly Ala Ile Leu Ser Phe Leu Glu  
 420 425 430  
 Ser Ala Ser Val Ser Thr Lys Lys Gly Leu Trp Ile Glu Asp Asn Glu  
 435 440 445  
 Asn Val Ser Leu Ser Gly Asn Thr Ala Thr Val Ser Gly Gly Ala Ile  
 450 455 460  
 Tyr Ala Thr Lys Cys Ala Leu His Gly Asn Thr Thr Leu Thr Phe Asp  
 465 470 475 480  
 Gly Asn Thr Ala Glu Thr Ala Gly Gly Ala Ile Tyr Thr Glu Thr Glu  
 485 490 495  
 Asp Phe Thr Leu Thr Gly Ser Thr Gly Thr Val Thr Phe Ser Thr Asn  
 500 505 510  
 Thr Ala Lys Thr Ala Gly Ala Leu His Thr Lys Gly Asn Thr Ser Phe  
 515 520 525  
 Thr Lys Asn Lys Ala Leu Val Phe Ser Gly Asn Ser Ala Thr Ala Thr  
 530 535 540  
 Ala Thr Thr Thr Thr Asp Gln Glu Gly Cys Gly Gly Ala Ile Leu Cys  
 545 550 555 560  
 Asn Ile Ser Glu Ser Asp Ile Ala Thr Lys Ser Leu Thr Leu Thr Glu  
 565 570 575  
 Asn Glu Ser Leu Ser Phe Ile Asn Asn Thr Ala Lys Arg Ser Gly Gly  
 580 585 590  
 Gly Ile Tyr Ala Pro Lys Cys Val Ile Ser Gly Ser Glu Ser Ile Asn  
 595 600 605  
 Phe Asp Gly Asn Thr Ala Glu Thr Ser Gly Gly Ala Ile Tyr Ser Lys  
 610 615 620  
 Asn Leu Ser Ile Thr Ala Asn Gly Pro Val Ser Phe Thr Asn Asn Ser  
 625 630 635 640  
 Gly Gly Lys Gly Gly Ala Ile Tyr Ile Ala Asp Ser Gly Glu Leu Ser  
 645 650 655  
 Leu Glu Ala Ile Asp Gly Asp Ile Thr Phe Ser Gly Asn Arg Ala Thr  
 660 665 670  
 Glu Gly Thr Ser Thr Pro Asn Ser Ile His Leu Gly Ala Gly Ala Lys  
 675 680 685  
 Ile Thr Lys Leu Ala Ala Ala Pro Gly His Thr Ile Tyr Phe Tyr Asp  
 690 695 700  
 Pro Ile Thr Met Glu Ala Pro Ala Ser Gly Gly Thr Ile Glu Glu Leu  
 705 710 715 720  
 Val Ile Asn Pro Val Val Lys Ala Ile Val Pro Pro Pro Gln Pro Lys  
 725 730 735



Asn Gly Pro Ile Ala Ser Val Pro Val Val Pro Val Ala Pro Ala Asn  
 740 745 750  
 Pro Asn Thr Gly Thr Ile Val Phe Ser Ser Gly Lys Leu Pro Ser Gln  
 755 760 765  
 Asp Ala Ser Ile Pro Ala Asn Thr Thr Thr Ile Leu Asn Gln Lys Ile  
 770 775 780  
 Asn Leu Ala Gly Gly Asn Val Val Leu Lys Glu Gly Ala Thr Leu Gln  
 785 790 795 800  
 Val Tyr Ser Phe Thr Gln Gln Pro Asp Ser Thr Val Phe Met Asp Ala  
 805 810 815  
 Gly Thr Thr Leu Glu Thr Thr Thr Thr Asn Asn Thr Asp Gly Ser Ile  
 820 825 830  
 Asp Leu Lys Asn Leu Ser Val Asn Leu Asp Ala Leu Asp Gly Lys Arg  
 835 840 845  
 Met Ile Thr Ile Ala Val Asn Ser Thr Ser Gly Gly Leu Lys Ile Ser  
 850 855 860  
 Gly Asp Leu Lys Phe His Asn Asn Glu Gly Ser Phe Tyr Asp Asn Pro  
 865 870 875 880  
 Gly Leu Lys Ala Asn Leu Asn Leu Pro Phe Leu Asp Leu Ser Ser Thr  
 885 890 895  
 Ser Gly Thr Val Asn Leu Asp Asp Phe Asn Pro Ile Pro Ser Ser Met  
 900 905 910  
 Ala Ala Pro Asp Tyr Gly Tyr Gln Gly Ser Trp Thr Leu Val Pro Lys  
 915 920 925  
 Val Gly Ala Gly Gly Lys Val Thr Leu Val Ala Glu Trp Gln Ala Leu  
 930 935 940  
 Gly Tyr Thr Pro Lys Pro Glu Leu Arg Ala Thr Leu Val Pro Asn Ser  
 945 950 955 960  
 Leu Trp Asn Ala Tyr Val Asn Ile His Ser Ile Gln Gln Glu Ile Ala  
 965 970 975  
 Thr Ala Met Ser Asp Ala Pro Ser His Pro Gly Ile Trp Ile Gly Gly  
 980 985 990  
 Ile Gly Asn Ala Phe His Gln Asp Lys Gln Lys Glu Asn Ala Gly Phe  
 995 1000 1005  
 Arg Leu Ile Ser Arg Gly Tyr Ile Val Gly Gly Ser Met Thr Thr Pro  
 1010 1015 1020  
 Gln Glu Tyr Thr Phe Ala Val Ala Phe Ser Gln Leu Phe Gly Lys Ser  
 1025 1030 1035 1040  
 Lys Asp Tyr Val Val Ser Asp Ile Lys Ser Gln Val Tyr Ala Gly Ser  
 1045 1050 1055  
 Leu Cys Ala Gln Ser Ser Tyr Val Ile Pro Leu His Ser Ser Leu Arg  
 1060 1065 1070  
 Arg His Val Leu Ser Lys Val Leu Pro Glu Leu Pro Gly Glu Thr Pro  
 1075 1080 1085  
 Leu Val Leu His Gly Gln Val Ser Tyr Gly Arg Asn His His Asn Met  
 1090 1095 1100  
 Thr Thr Lys Leu Ala Asn Asn Thr Gln Gly Lys Ser Asp Trp Asp Ser  
 1105 1110 1115 1120  
 His Ser Ser Leu Leu Lys Ser Val Val Leu Phe Leu  
 1125 1130

&lt;210&gt;467

&lt;211&gt;154

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;467

Phe Ala Val Glu Val Gly Gly Ser Leu Pro Val Asp Leu Asn Tyr Arg  
 1 5 10 15  
 Tyr Leu Thr Ser Tyr Ser Pro Tyr Val Lys Leu Gln Val Val Ser Val  
 20 25 30  
 Asn Gln Lys Gly Phe Gln Glu Val Ala Ala Asp Pro Arg Ile Phe Asp  
 35 40 45  
 Ala Ser His Leu Val Asn Val Ser Ile Pro Met Gly Leu Thr Phe Lys  
 50 55 60  
 His Glu Ser Ala Lys Pro Pro Ser Ala Leu Leu Leu Thr Leu Gly Tyr

65 70 75 80  
 Ala Val Asp Ala Tyr Arg Asp His Pro His Cys Leu Thr Ser Leu Thr  
 85 90 95  
 Asn Gly Thr Ser Trp Ser Thr Phe Ala Thr Asn Leu Ser Arg Gln Ala  
 100 105 110  
 Phe Phe Ala Glu Ala Ser Gly His Leu Lys Leu Leu His Gly Leu Asp  
 115 120 125  
 Cys Phe Ala Ser Gly Ser Cys Glu Leu Arg Ser Ser Arg Ser Tyr  
 130 135 140  
 Asn Ala Asn Cys Gly Thr Arg Tyr Ser Phe  
 145 150  
 <210>468  
 <211>671  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>468  
 Met Lys Ser Ser Val Ser Trp Leu Phe Phe Ser Ser Ile Pro Leu Phe  
 1 5 10 15  
 Ser Ser Leu Ser Ile Val Ala Ala Glu Val Thr Leu Asp Ser Ser Asn  
 20 25 30  
 Asn Ser Tyr Asp Gly Ser Asn Gly Thr Thr Phe Thr Val Phe Ser Thr  
 35 40 45  
 Thr Asp Ala Ala Ala Gly Thr Thr Tyr Ser Leu Leu Ser Asp Val Ser  
 50 55 60  
 Phe Gln Asn Ala Gly Ala Leu Gly Ile Pro Leu Ala Ser Gly Cys Phe  
 65 70 75 80  
 Leu Glu Ala Gly Gly Asp Leu Thr Phe Gln Gly Asn Gln His Ala Leu  
 85 90 95  
 Lys Phe Ala Phe Ile Asn Ala Gly Ser Ser Ala Gly Thr Val Ala Ser  
 100 105 110  
 Thr Ser Ala Ala Asp Lys Asn Leu Phe Asn Asp Phe Ser Arg Leu  
 115 120 125  
 Ser Ile Ile Ser Cys Pro Ser Leu Leu Leu Ser Pro Thr Gly Gln Cys  
 130 135 140  
 Ala Leu Lys Ser Val Gly Asn Leu Ser Leu Thr Gly Asn Ser Gln Ile  
 145 150 155 160  
 Ile Phe Thr Gln Asn Phe Ser Ser Asp Asn Gly Gly Val Ile Asn Thr  
 165 170 175  
 Lys Asn Phe Leu Leu Ser Gly Thr Ser Gln Phe Ala Ser Phe Ser Arg  
 180 185 190  
 Asn Gln Ala Phe Thr Gly Lys Gln Gly Gly Val Val Tyr Ala Thr Gly  
 195 200 205  
 Thr Ile Thr Ile Glu Asn Ser Pro Gly Ile Val Ser Phe Ser Gln Asn  
 210 215 220  
 Leu Ala Lys Gly Ser Gly Gly Ala Leu Tyr Ser Thr Asp Asn Cys Ser  
 225 230 235 240  
 Ile Thr Asp Asn Phe Gln Val Ile Phe Asp Gly Asn Ser Ala Trp Glu  
 245 250 255  
 Ala Ala Gln Ala Gln Gly Gly Ala Ile Cys Cys Thr Thr Thr Asp Lys  
 260 265 270  
 Thr Val Thr Leu Thr Gly Asn Lys Asn Leu Ser Phe Thr Asn Asn Thr  
 275 280 285  
 Ala Leu Thr Tyr Gly Gly Ala Ile Ser Gly Leu Lys Val Ser Ile Ser  
 290 295 300  
 Ala Gly Gly Pro Thr Leu Phe Gln Ser Asn Ile Ser Gly Ser Ser Ala  
 305 310 315 320  
 Gly Gln Gly Gly Gly Gly Ala Ile Asn Ile Ala Ser Ala Gly Glu Leu  
 325 330 335  
 Ala Leu Ser Ala Thr Ser Gly Asp Ile Thr Phe Asn Asn Asn Gln Val  
 340 345 350  
 Thr Asn Gly Ser Thr Ser Thr Arg Asn Ala Ile Asn Ile Ile Asp Thr  
 355 360 365  
 Ala Lys Val Thr Ser Ile Arg Ala Ala Thr Gly Gln Ser Ile Tyr Phe  
 370 375 380

Tyr Asp Pro Ile Thr Asn Pro Gly Thr Ala Ala Ser Thr Asp Thr Leu  
 385 390 395 400  
 Asn Leu Asn Leu Ala Asp Ala Asn Ser Glu Ile Glu Tyr Gly Gly Ala  
 405 410 415  
 Ile Val Phe Ser Gly Glu Lys Leu Ser Pro Thr Glu Lys Ala Ile Ala  
 420 425 430  
 Ala Asn Val Thr Ser Thr Ile Arg Gln Pro Ala Val Leu Ala Arg Gly  
 435 440 445  
 Asp Leu Val Leu Arg Asp Gly Val Thr Val Thr Phe Lys Asp Leu Thr  
 450 455 460  
 Gln Ser Pro Gly Ser Arg Ile Leu Met Asp Gly Gly Thr Thr Leu Ser  
 465 470 475 480  
 Ala Lys Glu Ala Asn Leu Ser Leu Asn Gly Leu Ala Val Asn Leu Ser  
 485 490 495  
 Ser Leu Asp Gly Thr Asn Lys Ala Ala Leu Lys Thr Glu Ala Ala Asp  
 500 505 510  
 Lys Asn Ile Ser Leu Ser Gly Thr Ile Ala Leu Ile Asp Thr Glu Gly  
 515 520 525  
 Ser Phe Tyr Glu Asn His Asn Leu Lys Ser Ala Ser Thr Tyr Pro Leu  
 530 535 540  
 Leu Glu Leu Thr Thr Ala Gly Ala Asn Gly Thr Ile Thr Leu Gly Ala  
 545 550 555 560  
 Leu Ser Thr Leu Thr Leu Gln Glu Pro Glu Thr His Tyr Gly Tyr Gln  
 565 570 575  
 Gly Asn Trp Gln Leu Ser Trp Ala Asn Ala Thr Ser Ser Lys Ile Gly  
 580 585 590  
 Ser Ile Asn Trp Thr Arg Thr Gly Tyr Ile Pro Ser Pro Glu Arg Lys  
 595 600 605  
 Ser Asn Leu Pro Leu Asn Ser Leu Trp Gly Asn Phe Ile Asp Ile Arg  
 610 615 620  
 Ser Ile Asn Gln Leu Ile Glu Thr Lys Ser Ser Gly Glu Pro Phe Glu  
 625 630 635 640  
 Arg Glu Tyr Gly Phe Gln Glu Leu Arg Ile Ser Ser Ile Glu Ile Leu  
 645 650 655  
 Cys Pro Pro Ala Met Val Ser Ala Ile Ser Ala Gly Val Met His  
 660 665 670

&lt;210&gt;469

&lt;211&gt;294

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;469

Val Trp Leu Ser Gly Ile Ala Asn Phe Phe Tyr Arg Asp Ser Met Pro  
 1 5 10 15  
 Thr Arg His Gly Phe Arg His Ile Ser Gly Gly Tyr Ala Leu Gly Ile  
 20 25 30  
 Thr Ala Thr Thr Pro Ala Glu Asp Gln Leu Thr Phe Ala Phe Cys Gln  
 35 40 45  
 Leu Phe Ala Arg Asp Arg Asn His Ile Thr Gly Lys Asn His Gly Asp  
 50 55 60  
 Thr Tyr Gly Ala Ser Leu Tyr Phe His His Thr Glu Gly Leu Phe Asp  
 65 70 75 80  
 Ile Ala Asn Phe Leu Trp Gly Lys Ala Thr Arg Ala Pro Trp Val Leu  
 85 90 95  
 Ser Glu Ile Ser Gln Ile Ile Pro Leu Ser Phe Asp Ala Lys Phe Ser  
 100 105 110  
 Tyr Leu His Thr Asp Asn His Met Lys Thr Tyr Tyr Thr Asp Asn Ser  
 115 120 125  
 Ile Ile Lys Gly Ser Trp Arg Asn Asp Ala Phe Cys Ala Asp Leu Gly  
 130 135 140  
 Ala Ser Leu Pro Phe Val Ile Ser Val Pro Tyr Leu Leu Lys Glu Val  
 145 150 155 160  
 Glu Pro Phe Val Lys Val Gln Tyr Ile Tyr Ala His Gln Gln Asp Phe  
 165 170 175  
 Tyr Glu Arg Tyr Ala Glu Gly Arg Ala Phe Asn Lys Ser Glu Leu Ile

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      180      185      190
Asn Val Glu Ile Pro Ile Gly Val Thr Phe Glu Arg Asp Ser Lys Ser
      195      200      205
Glu Lys Gly Thr Tyr Asp Leu Thr Leu Met Tyr Ile Leu Asp Ala Tyr
      210      215      220
Arg Arg Asn Pro Lys Cys Gln Thr Ser Leu Ile Ala Ser Asp Ala Asn
225      230      235      240
Trp Met Ala Tyr Gly Thr Asn Leu Ala Arg Gln Gly Phe Ser Val Arg
      245      250      255
Ala Ala Asn His Phe Gln Val Asn Pro His Met Glu Ile Phe Gly Gln
      260      265      270
Phe Ala Phe Glu Val Arg Ser Ser Ser Arg Asn Tyr Asn Thr Asn Leu
      275      280      285
Gly Ser Lys Phe Cys Phe
      290
<210>470
<211>930
<212>PRT
<213>Chlamydia pneumoniae
<400>470
Met Lys Ile Pro Leu His Lys Leu Leu Ile Ser Ser Thr Leu Val Thr
  1      5      10      15
Pro Ile Leu Leu Ser Ile Ala Thr Tyr Gly Ala Asp Ala Ser Leu Ser
      20      25      30
Pro Thr Asp Ser Phe Asp Gly Ala Gly Gly Ser Thr Phe Thr Pro Lys
      35      40      45
Ser Thr Ala Asp Ala Asn Gly Thr Asn Tyr Val Leu Ser Gly Asn Val
      50      55      60
Tyr Ile Asn Asp Ala Gly Lys Gly Thr Ala Leu Thr Gly Cys Cys Phe
      65      70      75      80
Thr Glu Thr Thr Gly Asp Leu Thr Phe Thr Gly Lys Gly Tyr Ser Phe
      85      90      95
Ser Phe Asn Thr Val Asp Ala Gly Ser Asn Ala Gly Ala Ala Ala Ser
      100      105      110
Thr Thr Ala Asp Lys Ala Leu Thr Phe Thr Gly Phe Ser Asn Leu Ser
      115      120      125
Phe Ile Ala Ala Pro Gly Thr Thr Val Ala Ser Gly Lys Ser Thr Leu
      130      135      140
Ser Ser Ala Gly Ala Leu Asn Leu Thr Asp Asn Gly Thr Ile Leu Phe
145      150      155      160
Ser Gln Asn Val Ser Asn Glu Ala Asn Asn Asn Gly Gly Ala Ile Thr
      165      170      175
Ala Lys Thr Leu Ser Ile Ser Gly Asn Thr Ser Ser Ile Thr Phe Thr
      180      185      190
Ser Asn Ser Ala Lys Lys Leu Gly Gly Ala Ile Tyr Ser Ser Ala Ala
      195      200      205
Ala Ser Ile Ser Gly Asn Thr Gly Gln Leu Val Phe Met Asn Asn Lys
      210      215      220
Gly Glu Thr Gly Gly Gly Ala Leu Gly Phe Glu Ala Ser Ser Ser Ile
225      230      235      240
Thr Gln Asn Ser Ser Leu Phe Phe Ser Gly Asn Thr Ala Thr Asp Ala
      245      250      255
Ala Gly Lys Gly Gly Ala Ile Tyr Cys Glu Lys Thr Gly Glu Thr Pro
      260      265      270
Thr Leu Thr Ile Ser Gly Asn Lys Ser Leu Thr Phe Ala Glu Asn Ser
      275      280      285
Ser Val Thr Gln Gly Gly Ala Ile Cys Ala His Gly Leu Asp Leu Ser
      290      295      300
Ala Ala Gly Pro Thr Leu Phe Ser Asn Asn Arg Cys Gly Asn Thr Ala
305      310      315      320
Ala Gly Lys Gly Gly Ala Ile Ala Ile Ala Asp Ser Gly Ser Leu Ser
      325      330      335
Leu Ser Ala Asn Gln Gly Asp Ile Thr Phe Leu Gly Asn Thr Leu Thr
      340      345      350

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Ser Thr Ser Ala Pro Thr Ser Thr Arg Asn Ala Ile Tyr Leu Gly Ser  
 355 360 365  
 Ser Ala Lys Ile Thr Asn Leu Arg Ala Ala Gln Gly Gln Ser Ile Tyr  
 370 375 380  
 Phe Tyr Asp Pro Ile Ala Ser Asn Thr Thr Gly Ala Ser Asp Val Leu  
 385 390 395 400  
 Thr Ile Asn Gln Pro Asp Ser Asn Ser Pro Leu Asp Tyr Ser Gly Thr  
 405 410 415  
 Ile Val Phe Ser Gly Glu Lys Leu Ser Ala Asp Glu Ala Lys Ala Ala  
 420 425 430  
 Asp Asn Phe Thr Ser Ile Leu Lys Gln Pro Leu Ala Leu Ala Ser Gly  
 435 440 445  
 Thr Leu Ala Leu Lys Gly Asn Val Glu Leu Asp Val Asn Gly Phe Thr  
 450 455 460  
 Gln Thr Glu Gly Ser Thr Leu Leu Met Gln Pro Gly Thr Lys Leu Lys  
 465 470 475 480  
 Ala Asp Thr Glu Ala Ile Ser Leu Thr Lys Leu Val Val Asp Leu Ser  
 485 490 495  
 Ala Leu Glu Gly Asn Lys Ser Val Ser Ile Glu Thr Ala Gly Ala Asn  
 500 505 510  
 Lys Thr Ile Thr Leu Thr Ser Pro Leu Val Phe Gln Asp Ser Ser Gly  
 515 520 525  
 Asn Phe Tyr Glu Ser His Thr Ile Asn Gln Ala Phe Thr Gln Pro Leu  
 530 535 540  
 Val Val Phe Thr Ala Ala Thr Ala Ala Ser Asp Ile Tyr Ile Asp Ala  
 545 550 555 560  
 Leu Leu Thr Ser Pro Val Gln Thr Pro Glu Pro His Tyr Gly Tyr Gln  
 565 570 575  
 Gly His Trp Glu Ala Thr Trp Ala Asp Thr Ser Thr Ala Lys Ser Gly  
 580 585 590  
 Thr Met Thr Trp Val Thr Thr Gly Tyr Asn Pro Asn Pro Glu Arg Arg  
 595 600 605  
 Ala Ser Val Val Pro Asp Ser Leu Trp Ala Ser Phe Thr Asp Ile Arg  
 610 615 620  
 Thr Leu Gln Gln Ile Met Thr Ser Gln Ala Asn Ser Ile Tyr Gln Gln  
 625 630 635 640  
 Arg Gly Leu Trp Ala Ser Gly Thr Ala Asn Phe Phe His Lys Asp Lys  
 645 650 655  
 Ser Gly Thr Asn Gln Ala Phe Arg His Lys Ser Tyr Gly Tyr Ile Val  
 660 665 670  
 Gly Gly Ser Ala Glu Asp Phe Ser Glu Asn Ile Phe Ser Val Ala Phe  
 675 680 685  
 Cys Gln Leu Phe Gly Lys Asp Lys Asp Leu Phe Ile Val Glu Asn Thr  
 690 695 700  
 Ser His Asn Tyr Leu Ala Ser Leu Tyr Leu Gln His Arg Ala Phe Leu  
 705 710 715 720  
 Gly Gly Leu Pro Met Pro Ser Phe Gly Ser Ile Thr Asp Met Leu Lys  
 725 730 735  
 Asp Ile Pro Leu Ile Leu Asn Ala Gln Leu Ser Tyr Ser Tyr Thr Lys  
 740 745 750  
 Asn Asp Met Asp Thr Arg Tyr Thr Ser Tyr Pro Glu Ala Gln Gly Ser  
 755 760 765  
 Trp Thr Asn Asn Ser Gly Ala Leu Glu Leu Gly Gly Ser Leu Ala Leu  
 770 775 780  
 Tyr Leu Pro Lys Glu Ala Pro Phe Phe Gln Gly Tyr Phe Pro Phe Leu  
 785 790 795 800  
 Lys Phe Gln Ala Val Tyr Ser Arg Gln Gln Asn Phe Lys Glu Ser Gly  
 805 810 815  
 Ala Glu Ala Arg Ala Phe Asp Asp Gly Asp Leu Val Asn Cys Ser Ile  
 820 825 830  
 Pro Val Gly Ile Arg Leu Glu Lys Ile Ser Glu Asp Glu Lys Asn Asn  
 835 840 845  
 Phe Glu Ile Ser Leu Ala Tyr Ile Gly Asp Val Tyr Arg Lys Asn Pro  
 850 855 860

Arg Ser Arg Thr Ser Leu Met Val Ser Gly Ala Ser Trp Thr Ser Leu  
 865 870 875 880  
 Cys Lys Asn Leu Ala Arg Gln Ala Phe Leu Ala Ser Ala Gly Ser His  
 885 890 895  
 Leu Thr Leu Ser Pro His Val Glu Leu Ser Gly Glu Ala Ala Tyr Glu  
 900 905 910  
 Leu Arg Gly Ser Ala His Ile Tyr Asn Val Asp Cys Gly Leu Arg Tyr  
 915 920 925  
 Ser Phe  
 930

&lt;210&gt;471

&lt;211&gt;138

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;471

Ile Ala Pro Pro Asn Phe Phe Ala Leu Leu Leu Val Lys Val Ile Glu  
 1 5 10 15  
 Glu Val Phe Pro Glu Ile Glu Arg Val Phe Ala Val Ile Ala Pro Pro  
 20 25 30  
 Leu Leu Leu Ala Ser Leu Glu Thr Phe Trp Leu Lys Arg Ile Val Pro  
 35 40 45  
 Leu Ser Val Arg Phe Lys Ala Pro Ala Glu Leu Lys Val Leu Phe Pro  
 50 55 60  
 Glu Ala Thr Val Val Pro Gly Ala Ala Met Lys Glu Arg Leu Glu Asn  
 65 70 75 80  
 Pro Val Asn Val Arg Ala Leu Ser Ala Val Val Leu Ala Ala Ala Pro  
 85 90 95  
 Ala Phe Glu Pro Ala Ser Thr Val Leu Asn Glu Asn Glu Tyr Pro Phe  
 100 105 110  
 Pro Val Asn Val Arg Ser Pro Val Val Ser Val Lys Gln Gln Pro Val  
 115 120 125  
 Asn Ala Val Pro Phe Pro Ala Ser Phe Ile  
 130 135

&lt;210&gt;472

&lt;211&gt;927

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;472

Met Lys Ser Ser Leu His Trp Phe Leu Ile Ser Ser Ser Leu Ala Leu  
 1 5 10 15  
 Pro Leu Ser Leu Asn Phe Ser Ala Phe Ala Ala Val Val Glu Ile Asn  
 20 25 30  
 Leu Gly Pro Thr Asn Ser Phe Ser Gly Pro Gly Thr Tyr Thr Pro Pro  
 35 40 45  
 Ala Gln Thr Thr Asn Ala Asp Gly Thr Ile Tyr Asn Leu Thr Gly Asp  
 50 55 60  
 Val Ser Ile Thr Asn Ala Gly Ser Pro Thr Ala Leu Thr Ala Ser Cys  
 65 70 75 80  
 Phe Lys Glu Thr Thr Gly Asn Leu Ser Phe Gln Gly His Gly Tyr Gln  
 85 90 95  
 Phe Leu Leu Gln Asn Ile Asp Ala Gly Ala Asn Cys Thr Phe Thr Asn  
 100 105 110  
 Thr Ala Ala Asn Lys Leu Leu Ser Phe Ser Gly Phe Ser Tyr Leu Ser  
 115 120 125  
 Leu Ile Gln Thr Thr Asn Ala Thr Thr Gly Thr Gly Ala Ile Lys Ser  
 130 135 140  
 Thr Gly Ala Cys Ser Ile Gln Ser Asn Tyr Ser Cys Tyr Phe Gly Gln  
 145 150 155 160  
 Asn Phe Ser Asn Asp Asn Gly Gly Ala Leu Gln Gly Ser Ser Ile Ser  
 165 170 175  
 Leu Ser Leu Asn Pro Asn Leu Thr Phe Ala Lys Asn Lys Ala Thr Gln  
 180 185 190  
 Lys Gly Gly Ala Leu Tyr Ser Thr Gly Gly Ile Thr Ile Asn Asn Thr  
 195 200 205

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Leu Asn Ser Ala Ser Phe Ser Glu Asn Thr Ala Ala Asn Asn Gly Gly
  210          215          220
Ala Ile Tyr Thr Glu Ala Ser Ser Phe Ile Ser Ser Asn Lys Ala Ile
  225          230          235          240
Ser Phe Ile Asn Asn Ser Val Thr Ala Thr Ser Ala Thr Gly Gly Ala
          245          250          255
Ile Tyr Cys Ser Ser Thr Ser Ala Pro Lys Pro Val Leu Thr Leu Ser
          260          265          270
Asp Asn Gly Glu Leu Asn Phe Ile Gly Asn Thr Ala Ile Thr Ser Gly
          275          280          285
Gly Ala Ile Tyr Thr Asp Asn Leu Val Leu Ser Ser Gly Gly Pro Thr
          290          295          300
Leu Phe Lys Asn Asn Ser Ala Ile Asp Thr Ala Ala Pro Leu Gly Gly
  305          310          315          320
Ala Ile Ala Ile Ala Asp Ser Gly Ser Leu Ser Leu Ser Ala Leu Gly
          325          330          335
Gly Asp Ile Thr Phe Glu Gly Asn Thr Val Val Lys Gly Ala Ser Ser
          340          345          350
Ser Gln Thr Thr Thr Arg Asn Ser Ile Asn Ile Gly Asn Thr Asn Ala
          355          360          365
Lys Ile Val Gln Leu Arg Ala Ser Gln Gly Asn Thr Ile Tyr Phe Tyr
          370          375          380
Asp Pro Ile Thr Thr Ser Ile Thr Ala Ala Leu Ser Asp Ala Leu Asn
  385          390          395          400
Leu Asn Gly Pro Asp Leu Ala Gly Asn Pro Ala Tyr Gln Gly Thr Ile
          405          410          415
Val Phe Ser Gly Glu Lys Leu Ser Glu Ala Glu Ala Ala Glu Ala Asp
          420          425          430
Asn Leu Lys Ser Thr Ile Gln Gln Pro Leu Thr Leu Ala Gly Gly Gln
          435          440          445
Leu Ser Leu Lys Ser Gly Val Thr Leu Val Ala Lys Ser Phe Ser Gln
          450          455          460
Ser Pro Gly Ser Thr Leu Leu Met Asp Ala Gly Thr Thr Leu Glu Thr
  465          470          475          480
Ala Asp Gly Ser Leu Ser Ile Ile Cys Ser Gln Cys Arg Phe Leu Lys
          485          490          495
Arg Asp Gln Glu Xaa Thr Leu Lys Ala Thr Gln Ala Ser Gln Thr Val
          500          505          510
Thr Leu Ser Gly Ser Leu Ser Leu Val Asp Pro Ser Gly Asn Val Tyr
          515          520          525
Glu Asp Val Ser Trp Asn Asn Pro Gln Val Phe Ser Cys Leu Thr Leu
          530          535          540
Thr Ala Asp Asp Pro Ala Asn Ile His Ile Thr Asp Leu Ala Ala Asp
  545          550          555          560
Pro Leu Glu Lys Asn Pro Ile His Trp Gly Tyr Gln Gly Asn Trp Ala
          565          570          575
Leu Ser Trp Gln Glu Asp Thr Ala Thr Lys Ser Lys Ala Ala Thr Leu
          580          585          590
Thr Trp Thr Lys Thr Gly Tyr Asn Pro Asn Pro Glu Arg Arg Gly Thr
          595          600          605
Leu Val Ala Asn Thr Leu Trp Gly Ser Phe Val Asp Val Arg Ser Ile
          610          615          620
Gln Gln Leu Val Ala Thr Lys Val Arg Gln Ser Gln Glu Thr Arg Gly
  625          630          635          640
Ile Trp Cys Glu Gly Ile Ser Asn Phe Phe His Lys Asp Ser Thr Lys
          645          650          655
Ile Asn Lys Gly Phe Arg His Ile Ser Ala Gly Tyr Val Val Gly Ala
          660          665          670
Thr Thr Thr Leu Ala Ser Asp Asn Leu Ile Thr Ala Ala Phe Cys Gln
          675          680          685
Leu Phe Gly Lys Asp Arg Asp His Phe Ile Asn Lys Asn Arg Ala Ser
          690          695          700
Ala Tyr Ala Ala Ser Leu His Leu Gln His Leu Ala Thr Leu Ser Ser
  705          710          715          720

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Pro Ser Leu Leu Arg Tyr Leu Pro Gly Ser Glu Ser Glu Gln Pro Val  
 725 730 735  
 Leu Phe Asp Ala Gln Ile Ser Tyr Ile Tyr Ser Lys Asn Thr Met Lys  
 740 745 750  
 Thr Tyr Tyr Thr Gln Ala Pro Lys Gly Glu Ser Ser Trp Tyr Asn Asp  
 755 760 765  
 Gly Cys Ala Leu Glu Leu Ala Ser Ser Leu Pro His Thr Ala Leu Ser  
 770 775 780  
 His Glu Gly Leu Phe His Ala Tyr Phe Pro Phe Ile Lys Val Glu Ala  
 785 790 795 800  
 Ser Tyr Ile His Gln Asp Ser Phe Lys Glu Arg Asn Thr Thr Leu Val  
 805 810 815  
 Arg Ser Phe Asp Ser Gly Asp Leu Ile Asn Val Ser Val Pro Ile Gly  
 820 825 830  
 Ile Thr Phe Glu Arg Phe Ser Arg Asn Glu Arg Ala Ser Tyr Glu Ala  
 835 840 845  
 Thr Val Ile Tyr Val Ala Asp Val Tyr Arg Lys Asn Pro Asp Cys Thr  
 850 855 860  
 Thr Ala Leu Leu Ile Asn Asn Thr Ser Trp Lys Thr Thr Gly Thr Asn  
 865 870 875 880  
 Leu Ser Arg Gln Ala Gly Ile Gly Arg Ala Gly Ile Phe Tyr Ala Phe  
 885 890 895  
 Ser Pro Asn Leu Glu Val Thr Ser Asn Leu Ser Met Glu Ile Arg Gly  
 900 905 910  
 Ser Ser Arg Ser Tyr Asn Ala Asp Leu Gly Gly Lys Phe Gln Phe  
 915 920 925

&lt;210&gt;473

&lt;211&gt;393

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;473

Phe Ile Gln Pro Ser Arg Arg Glu Ile His Glu Trp Lys Cys Ile Leu  
 1 5 10 15  
 Leu Gly Ser Ser Leu Arg Met Glu Met Met Ser Pro Phe Gln Gln Pro  
 20 25 30  
 Glu Gln Cys His Phe Asp Val Val Gly Ser Phe Leu Arg Pro Glu Ser  
 35 40 45  
 Leu Thr Arg Ala Arg Ser Asp Phe Glu Glu Gly Arg Ile Val Tyr Glu  
 50 55 60  
 Gln Met Arg Val Val Glu Asp Ala Ala Ile Arg Asn Leu Ile Lys Lys  
 65 70 75 80  
 Gln Thr Glu Ala Gly Leu Ile Phe Phe Thr Asp Gly Glu Phe Arg Arg  
 85 90 95  
 Tyr Ser Trp Asp Phe Asp Phe Met Trp Gly Phe His Gly Val Asp Arg  
 100 105 110  
 Arg Arg Asp Ser Asn Asp Pro Glu Ile Gly Val Tyr Leu Lys Asp Lys  
 115 120 125  
 Ile Ser Val Ser Lys His Pro Phe Ile Glu His Phe Glu Phe Val Lys  
 130 135 140  
 Thr Phe Glu Lys Gly Asn Ala Lys Ala Lys Gln Thr Ile Pro Ser Pro  
 145 150 155 160  
 Ser Gln Phe Phe His Glu Met Ile Phe Ala Pro Asn Leu Lys Asn Thr  
 165 170 175  
 Arg Lys Phe Tyr Pro Thr Asn Gln Glu Leu Ile Asp Asp Ile Val Phe  
 180 185 190  
 Tyr Tyr Arg Gln Val Ile Gln Asp Leu Tyr Ala Ala Gly Cys Arg Asn  
 195 200 205  
 Leu Gln Leu Asp Asp Cys Ala Trp Cys Arg Leu Leu Asp Ile Arg Ala  
 210 215 220  
 Pro Ser Trp Tyr Gly Val Asp Ser His Asp Arg Leu Gln Glu Ile Leu  
 225 230 235 240  
 Glu Gln Phe Leu Trp Ile His Asn Leu Val Met Lys Asp Arg Pro Glu  
 245 250 255  
 Asp Leu Phe Val Ser Leu His Val Cys Arg Gly Asp Tyr Gln Ala Glu



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      260      265      270
Phe Phe Ser Arg Arg Ala Tyr Asp Ser Ile Glu Glu Pro Leu Phe Ala
      275      280      285
Lys Thr Asp Val Asp Ser Tyr His Tyr Tyr Trp Ala Leu Asp Asp Lys
      290      295      300
Tyr Ser Gly Gly Ala Glu Pro Leu Ala Tyr Val Ser Gly Glu Lys His
305      310      315      320
Val Cys Leu Gly Leu Ile Ser Ser Asn His Ser Cys Ile Glu Asp Arg
      325      330      335
Asp Ala Val Val Ser Arg Ile Tyr Glu Ala Ala Ser Tyr Ile Pro Leu
      340      345      350
Glu Arg Leu Ser Leu Ser Pro Gln Cys Gly Phe Ala Ser Cys Glu Gly
      355      360      365
Asp His Arg Met Thr Glu Glu Glu Gln Trp Lys Lys Ile Ala Phe Val
      370      375      380
Lys Glu Ile Ala Lys Glu Ile Trp Gly
385      390
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<211>643
<212>PRT
<213>Chlamydia pneumoniae
<400>474
Leu Met Ala Glu Pro Phe Met Leu Arg Ser Leu His Trp Leu Pro Gly
 1      5      10      15
Gly Gly Gly Gly Ile Ser Phe Ser Asn Asn Ile Val Gln Gly Thr Thr
      20      25      30
Ala Gly Asn Gly Gly Ala Ile Ser Ile Leu Ala Ala Gly Glu Cys Ser
      35      40      45
Leu Ser Ala Glu Ala Gly Asp Ile Thr Phe Asn Gly Asn Ala Ile Val
      50      55      60
Ala Thr Thr Pro Gln Thr Thr Lys Arg Asn Ser Ile Asp Ile Gly Ser
      65      70      75      80
Thr Ala Lys Ile Thr Asn Leu Arg Ala Ile Ser Gly His Ser Ile Phe
      85      90      95
Phe Tyr Asp Pro Ile Thr Ala Asn Thr Ala Ala Asp Ser Thr Asp Thr
      100      105      110
Leu Asn Leu Asn Lys Ala Asp Ala Gly Asn Ser Thr Asp Tyr Ser Gly
      115      120      125
Ser Ile Val Phe Ser Gly Glu Lys Leu Ser Glu Asp Glu Ala Lys Val
      130      135      140
Ala Asp Asn Leu Thr Ser Thr Leu Lys Gln Pro Val Thr Leu Thr Ala
145      150      155      160
Gly Asn Leu Val Leu Lys Arg Gly Val Thr Leu Asp Thr Lys Gly Phe
      165      170      175
Thr Gln Thr Ala Gly Ser Ser Val Ile Met Asp Ala Gly Thr Thr Leu
      180      185      190
Lys Ala Ser Thr Glu Glu Val Thr Leu Thr Gly Leu Ser Ile Pro Val
      195      200      205
Asp Ser Leu Gly Glu Gly Lys Lys Val Val Ile Ala Ala Ser Ala Ala
      210      215      220
Ser Lys Asn Val Ala Leu Ser Gly Pro Ile Leu Leu Leu Asp Asn Gln
225      230      235      240
Gly Asn Ala Tyr Glu Asn His Asp Leu Gly Lys Thr Gln Asp Phe Ser
      245      250      255
Phe Val Gln Leu Ser Ala Leu Gly Thr Ala Thr Thr Thr Asp Val Pro
      260      265      270
Ala Val Pro Thr Val Ala Thr Pro Thr His Tyr Gly Tyr Gln Gly Thr
      275      280      285
Trp Gly Met Thr Trp Val Asp Asp Thr Ala Ser Thr Pro Lys Thr Lys
      290      295      300
Thr Ala Thr Leu Ala Trp Thr Asn Thr Gly Tyr Leu Pro Asn Pro Glu
305      310      315      320
Arg Gln Gly Pro Leu Val Pro Asn Ser Leu Trp Gly Ser Phe Ser Asp
      325      330      335

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Ile Gln Ala Ile Gln Gly Val Ile Glu Arg Ser Ala Leu Thr Leu Cys  
 340 345 350  
 Ser Asp Arg Gly Phe Trp Ala Ala Gly Val Ala Asn Phe Leu Asp Lys  
 355 360 365  
 Asp Lys Lys Gly Glu Lys Arg Lys Tyr Arg His Lys Ser Gly Gly Tyr  
 370 375 380  
 Ala Ile Gly Gly Ala Ala Gln Thr Cys Ser Glu Asn Leu Ile Ser Phe  
 385 390 395 400  
 Ala Phe Cys Gln Leu Phe Gly Ser Asp Lys Asp Phe Leu Val Ala Lys  
 405 410 415  
 Asn His Thr Asp Thr Tyr Ala Gly Ala Phe Tyr Ile Gln His Ile Thr  
 420 425 430  
 Glu Cys Ser Gly Phe Ile Gly Cys Leu Leu Asp Lys Leu Pro Gly Ser  
 435 440 445  
 Trp Ser His Lys Pro Leu Val Leu Glu Gly Gln Leu Ala Tyr Ser His  
 450 455 460  
 Val Ser Asn Asp Leu Lys Thr Lys Tyr Thr Ala Tyr Pro Glu Val Lys  
 465 470 475 480  
 Gly Ser Trp Gly Asn Asn Ala Phe Asn Met Met Leu Gly Ala Ser Ser  
 485 490 495  
 His Ser Tyr Pro Glu Tyr Leu His Cys Phe Asp Thr Tyr Ala Pro Tyr  
 500 505 510  
 Ile Lys Leu Asn Leu Thr Tyr Ile Arg Gln Asp Ser Phe Ser Glu Lys  
 515 520 525  
 Gly Thr Glu Gly Arg Ser Phe Asp Asp Ser Asn Leu Phe Asn Leu Ser  
 530 535 540  
 Leu Pro Ile Gly Val Lys Phe Glu Lys Phe Ser Asp Cys Asn Asp Phe  
 545 550 555 560  
 Ser Tyr Asp Leu Thr Leu Ser Tyr Val Pro Asp Leu Ile Arg Asn Asp  
 565 570 575  
 Pro Lys Cys Thr Thr Ala Leu Val Ile Ser Gly Ala Ser Trp Glu Thr  
 580 585 590  
 Tyr Ala Asn Asn Leu Ala Arg Gln Ala Leu Gln Val Arg Ala Gly Ser  
 595 600 605  
 His Tyr Ala Phe Ser Pro Met Phe Glu Val Leu Gly Gln Phe Val Phe  
 610 615 620  
 Glu Val Arg Gly Ser Ser Arg Ile Tyr Asn Val Asp Leu Gly Gly Lys  
 625 630 635 640  
 Phe Gln Phe

&lt;210&gt;475

&lt;211&gt;102

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;475

Lys Lys Met Leu Cys Pro Asp Ile Ala Arg Lys Phe Val Ile Phe Ala  
 1 5 10 15  
 Val Asp Pro Met Ser Ile Glu Phe Leu Phe Val Val Cys Gly Val Val  
 20 25 30  
 Ala Thr Met Ala Phe Pro Leu Lys Val Met Ser Pro Ala Ser Ala Glu  
 35 40 45  
 Arg Leu His Ser Pro Ala Ala Ser Ile Glu Met Ala Pro Pro Leu Pro  
 50 55 60  
 Ala Val Val Pro Trp Thr Ile Leu Leu Glu Lys Glu Ile Pro Pro Pro  
 65 70 75 80  
 Pro Pro Gly Ser Gln Cys Lys Leu Leu Ser Ile Asn Gly Ser Ala Ile  
 85 90 95  
 Ser Tyr Ser Leu Val Ser  
 100

&lt;210&gt;476

&lt;211&gt;174

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;476

Ser Gln Pro Pro Gln Glu Lys Val Gln Leu Asn Val Glu Gly Ile Leu  
 1 5 10 15  
 His Leu Ile Thr Met Glu Leu Phe Tyr Leu Asn Lys Ile Thr Val Arg  
 20 25 30  
 Lys Met Ala Asp Ile Ser Thr Lys Asn Leu Ser Leu Lys Asn Ser Thr  
 35 40 45  
 Gly Ser Ile Ser Phe Glu Gly Asn Lys Ser Ser Ala Thr Gly Lys Lys  
 50 55 60  
 Gly Gly Ala Ile Cys Ala Thr Gly Thr Val Asp Ile Thr Asn Asn Thr  
 65 70 75 80  
 Ala Pro Thr Leu Phe Ser Asn Asn Ile Ala Glu Ala Ala Gly Gly Ala  
 85 90 95  
 Ile Asn Ser Thr Gly Asn Cys Thr Ile Thr Gly Asn Thr Ser Leu Val  
 100 105 110  
 Phe Ser Glu Asn Ser Val Thr Ala Thr Ala Gly Asn Gly Gly Ala Leu  
 115 120 125  
 Ser Gly Asp Ala Asp Val Thr Ile Ser Gly Asn Gln Ser Val Thr Phe  
 130 135 140  
 Ser Gly Asn Gln Ala Val Ala Asn Gly Gly Ala Ile Tyr Ala Lys Lys  
 145 150 155 160  
 Leu Thr Leu Ala Ser Gly Gly Gly Gly Gly Tyr Leu Leu Phe  
 165 170

&lt;210&gt;477

&lt;211&gt;118

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;477

Met Lys Ser Gln Phe Ser Trp Leu Val Leu Ser Ser Thr Leu Ala Cys  
 1 5 10 15  
 Phe Thr Ser Cys Ser Thr Val Phe Ala Ala Thr Ala Glu Asn Ile Gly  
 20 25 30  
 Pro Ser Asp Ser Phe Asp Gly Ser Thr Asn Thr Gly Thr Tyr Thr Pro  
 35 40 45  
 Lys Asn Thr Thr Thr Gly Ile Asp Tyr Thr Leu Thr Gly Asp Ile Thr  
 50 55 60  
 Leu Gln Asn Leu Gly Asp Ser Ala Ala Leu Thr Lys Gly Cys Phe Ser  
 65 70 75 80  
 Asp Thr Thr Glu Ser Leu Ser Phe Ala Gly Lys Gly Tyr Ser Leu Ser  
 85 90 95  
 Phe Leu Asn Xaa Lys Ser Ser Ala Glu Gly Ala Xaa Phe Leu Leu Gln  
 100 105 110  
 Leu Ile Lys Ile Cys Arg  
 115

&lt;210&gt;478

&lt;211&gt;949

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;478

Leu Ile Tyr Leu Phe Cys Phe Tyr Ile Asp Ala Asn Ser Ser Leu Lys  
 1 5 10 15  
 Asn Lys Ser Ile Thr Met Lys Thr Ser Ile Pro Trp Val Leu Val Ser  
 20 25 30  
 Ser Val Leu Ala Phe Ser Cys His Leu Gln Ser Leu Ala Asn Glu Glu  
 35 40 45  
 Leu Leu Ser Pro Asp Asp Ser Phe Asn Gly Asn Ile Asp Ser Gly Thr  
 50 55 60  
 Phe Thr Pro Lys Thr Ser Ala Thr Thr Tyr Ser Leu Thr Gly Asp Val  
 65 70 75 80  
 Phe Phe Tyr Glu Pro Gly Lys Gly Thr Pro Leu Ser Asp Ser Cys Phe  
 85 90 95  
 Lys Gln Thr Thr Asp Asn Leu Thr Phe Leu Gly Asn Gly His Ser Leu  
 100 105 110  
 Thr Phe Gly Phe Ile Asp Ala Gly Thr His Ala Gly Ala Ala Ser  
 115 120 125

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Thr | Ala | Asn | Lys | Asn | Leu | Thr | Phe | Ser | Gly | Phe | Ser | Leu | Leu | Ser |
| 130 |     |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Phe | Asp | Ser | Ser | Pro | Ser | Thr | Thr | Val | Thr | Thr | Gly | Gln | Gly | Thr | Leu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Ser | Ser | Ala | Gly | Gly | Val | Asn | Leu | Glu | Asn | Ile | Arg | Lys | Leu | Val | Val |
|     |     |     |     |     | 165 |     |     |     | 170 |     |     |     |     | 175 |     |
| Ala | Gly | Asn | Phe | Ser | Thr | Ala | Asp | Gly | Gly | Ala | Ile | Lys | Gly | Ala | Ser |
|     |     |     |     |     | 180 |     |     |     | 185 |     |     |     | 190 |     |     |
| Phe | Leu | Leu | Thr | Gly | Thr | Ser | Gly | Asp | Ala | Leu | Phe | Ser | Asn | Asn | Ser |
|     |     |     |     |     | 195 |     |     | 200 |     |     |     | 205 |     |     |     |
| Ser | Ser | Thr | Lys | Gly | Gly | Ala | Ile | Ala | Thr | Thr | Ala | Gly | Ala | Arg | Ile |
|     |     |     |     |     | 210 |     |     | 215 |     |     | 220 |     |     |     |     |
| Ala | Asn | Asn | Thr | Gly | Xaa | Val | Arg | Phe | Leu | Ser | Asn | Ile | Ala | Ser | Thr |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Ser | Gly | Gly | Ala | Ile | Asp | Asp | Glu | Gly | Thr | Ser | Ile | Leu | Ser | Asn | Asn |
|     |     |     |     |     | 245 |     |     |     | 250 |     |     |     |     | 255 |     |
| Lys | Phe | Leu | Tyr | Phe | Glu | Gly | Asn | Ala | Ala | Lys | Thr | Thr | Gly | Gly | Ala |
|     |     |     |     |     | 260 |     |     |     | 265 |     |     |     | 270 |     |     |
| Ile | Cys | Asn | Thr | Lys | Ala | Ser | Gly | Ser | Pro | Glu | Leu | Ile | Ile | Ser | Asn |
|     |     |     |     |     | 275 |     |     | 280 |     |     |     | 285 |     |     |     |
| Asn | Lys | Thr | Leu | Ile | Phe | Ala | Ser | Asn | Val | Ala | Glu | Thr | Ser | Gly | Gly |
|     |     |     |     |     | 290 |     |     | 295 |     |     | 300 |     |     |     |     |
| Ala | Ile | His | Ala | Lys | Lys | Leu | Ala | Leu | Ser | Ser | Gly | Gly | Phe | Thr | Glu |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Phe | Leu | Arg | Asn | Asn | Val | Ser | Ser | Ala | Thr | Pro | Lys | Gly | Gly | Ala | Ile |
|     |     |     |     |     | 325 |     |     |     | 330 |     |     |     |     | 335 |     |
| Ser | Ile | Asp | Ala | Ser | Gly | Glu | Leu | Ser | Leu | Ser | Ala | Glu | Thr | Gly | Asn |
|     |     |     |     |     | 340 |     |     | 345 |     |     |     | 350 |     |     |     |
| Ile | Thr | Phe | Val | Arg | Asn | Thr | Leu | Thr | Thr | Thr | Gly | Ser | Thr | Asp | Thr |
|     |     |     |     |     | 355 |     |     | 360 |     |     |     | 365 |     |     |     |
| Pro | Lys | Arg | Asn | Ala | Ile | Asn | Ile | Gly | Ser | Asn | Gly | Lys | Phe | Thr | Glu |
|     |     |     |     |     | 370 |     |     | 375 |     |     | 380 |     |     |     |     |
| Leu | Arg | Ala | Ala | Lys | Asn | His | Thr | Ile | Phe | Phe | Tyr | Asp | Pro | Ile | Thr |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Ser | Glu | Gly | Thr | Ser | Ser | Asp | Val | Leu | Lys | Ile | Asn | Asn | Gly | Ser | Ala |
|     |     |     |     |     | 405 |     |     |     | 410 |     |     |     | 415 |     |     |
| Gly | Ala | Leu | Asn | Pro | Tyr | Gln | Gly | Thr | Ile | Leu | Phe | Ser | Gly | Glu | Thr |
|     |     |     |     |     | 420 |     |     | 425 |     |     |     | 430 |     |     |     |
| Leu | Thr | Ala | Asp | Glu | Leu | Lys | Val | Ala | Asp | Asn | Leu | Lys | Ser | Ser | Phe |
|     |     |     |     |     | 435 |     |     | 440 |     |     |     | 445 |     |     |     |
| Thr | Gln | Pro | Val | Ser | Leu | Ser | Gly | Gly | Lys | Leu | Leu | Gln | Lys | Gly |     |
|     |     |     |     |     | 450 |     |     | 455 |     |     | 460 |     |     |     |     |
| Val | Thr | Leu | Glu | Ser | Thr | Ser | Phe | Ser | Gln | Glu | Ala | Gly | Ser | Leu | Leu |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Gly | Met | Asp | Ser | Gly | Thr | Thr | Leu | Ser | Thr | Thr | Ala | Gly | Ser | Ile | Thr |
|     |     |     |     |     | 485 |     |     |     | 490 |     |     |     |     | 495 |     |
| Ile | Thr | Asn | Leu | Gly | Ile | Asn | Val | Asp | Ser | Leu | Gly | Leu | Lys | Gln | Pro |
|     |     |     |     |     | 500 |     |     | 505 |     |     |     |     | 510 |     |     |
| Val | Ser | Leu | Thr | Ala | Lys | Gly | Ala | Ser | Asn | Lys | Val | Ile | Val | Ser | Gly |
|     |     |     |     |     | 515 |     |     | 520 |     |     |     | 525 |     |     |     |
| Lys | Leu | Asn | Leu | Ile | Asp | Ile | Glu | Gly | Asn | Ile | Tyr | Glu | Ser | His | Met |
|     |     |     |     |     | 530 |     |     | 535 |     |     | 540 |     |     |     |     |
| Phe | Ser | His | Asp | Gln | Leu | Phe | Ser | Leu | Leu | Lys | Ile | Thr | Val | Asp | Ala |
| 545 |     |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |
| Asp | Val | Asp | Thr | Asn | Val | Asp | Ile | Ser | Ser | Leu | Ile | Pro | Val | Pro | Ala |
|     |     |     |     |     | 565 |     |     |     | 570 |     |     |     |     | 575 |     |
| Glu | Asp | Pro | Asn | Ser | Glu | Tyr | Gly | Phe | Gln | Gly | Gln | Trp | Asn | Val | Asn |
|     |     |     |     |     | 580 |     |     | 585 |     |     |     | 590 |     |     |     |
| Trp | Thr | Thr | Asp | Thr | Ala | Thr | Asn | Thr | Lys | Glu | Ala | Thr | Ala | Thr | Trp |
|     |     |     |     |     | 595 |     |     | 600 |     |     |     | 605 |     |     |     |
| Thr | Lys | Thr | Gly | Phe | Val | Pro | Ser | Pro | Glu | Arg | Lys | Ser | Ala | Leu | Val |
|     |     |     |     |     | 610 |     |     |     |     | 620 |     |     |     |     |     |
| Cys | Asn | Thr | Leu | Trp | Gly | Val | Phe | Thr | Asp | Ile | Arg | Ser | Leu | Gln | Gln |
| 625 |     |     |     |     | 630 |     |     |     |     | 635 |     |     |     |     | 640 |

Leu Val Glu Ile Gly Ala Thr Gly Met Glu His Lys Gln Gly Phe Trp  
 645 650 655  
 Val Ser Ser Met Thr Asn Phe Leu His Lys Thr Gly Asp Glu Asn Arg  
 660 665 670  
 Lys Gly Phe Arg His Thr Ser Gly Gly Tyr Val Ile Gly Gly Ser Ala  
 675 680 685  
 His Thr Pro Lys Asp Asp Leu Phe Thr Phe Ala Phe Cys His Leu Phe  
 690 695 700  
 Ala Arg Asp Lys Asp Cys Phe Ile Ala His Asn Asn Ser Arg Thr Tyr  
 705 710 715 720  
 Gly Gly Thr Leu Phe Phe Lys His Ser His Thr Leu Gln Pro Gln Asn  
 725 730 735  
 Tyr Leu Arg Leu Gly Arg Ala Lys Phe Ser Glu Ser Ala Ile Glu Lys  
 740 745 750  
 Phe Pro Arg Glu Ile Pro Leu Ala Leu Asp Val Gln Val Ser Phe Ser  
 755 760 765  
 His Ser Asp Asn Arg Met Glu Thr His Tyr Thr Ser Leu Pro Glu Ser  
 770 775 780  
 Glu Gly Ser Trp Ser Asn Glu Cys Ile Ala Gly Gly Ile Gly Leu Asp  
 785 790 795 800  
 Leu Pro Phe Val Leu Ser Asn Pro His Pro Leu Phe Lys Thr Phe Ile  
 805 810 815  
 Pro Gln Met Lys Val Glu Met Val Tyr Val Ser Gln Asn Ser Phe Phe  
 820 825 830  
 Glu Ser Ser Ser Asp Gly Arg Gly Phe Ser Ile Gly Arg Leu Leu Asn  
 835 840 845  
 Leu Ser Ile Pro Val Gly Ala Lys Phe Val Gln Gly Asp Ile Gly Asp  
 850 855 860  
 Ser Tyr Thr Tyr Asp Leu Ser Gly Phe Phe Val Ser Asp Val Tyr Arg  
 865 870 875 880  
 Asn Asn Pro Gln Ser Thr Ala Thr Leu Val Met Ser Pro Asp Ser Trp  
 885 890 895  
 Lys Ile Arg Gly Gly Asn Leu Ser Arg Gln Ala Phe Leu Leu Arg Gly  
 900 905 910  
 Ser Asn Asn Tyr Val Tyr Asn Ser Asn Cys Glu Leu Phe Gly His Tyr  
 915 920 925  
 Ala Met Glu Leu Arg Gly Ser Ser Arg Asn Tyr Asn Val Asp Val Gly  
 930 935 940  
 Thr Lys Leu Arg Phe  
 945  
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 <211>519  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>479  
 Phe Asn Glu Glu Thr Met Thr Ile Leu Arg Asn Phe Leu Thr Cys Ser  
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 Ala Leu Phe Leu Ala Leu Pro Ala Ala Gln Val Val Tyr Leu His  
 20 25 30  
 Glu Ser Asp Gly Tyr Asn Gly Ala Ile Asn Asn Lys Ser Leu Glu Pro  
 35 40 45  
 Lys Ile Thr Cys Tyr Pro Glu Gly Thr Ser Tyr Ile Phe Leu Asp Asp  
 50 55 60  
 Val Arg Ile Ser Asn Val Lys His Asp Gln Glu Asp Ala Gly Val Phe  
 65 70 75 80  
 Ile Asn Arg Ser Gly Asn Leu Phe Phe Met Gly Asn Arg Cys Asn Phe  
 85 90 95  
 Thr Phe His Asn Leu Met Thr Glu Gly Phe Gly Ala Ala Ile Ser Asn  
 100 105 110  
 Arg Val Gly Asp Thr Thr Leu Thr Leu Ser Asn Phe Ser Tyr Leu Ala  
 115 120 125  
 Phe Thr Ser Ala Pro Leu Leu Pro Gln Gly Gln Gly Ala Ile Tyr Ser  
 130 135 140  
 Leu Gly Ser Val Met Ile Glu Asn Ser Glu Glu Val Thr Phe Cys Gly

145 150 155 160  
 Asn Tyr Ser Ser Trp Ser Gly Ala Ala Ile Tyr Thr Pro Tyr Leu Leu  
 165 170 175  
 Gly Ser Lys Ala Ser Arg Pro Ser Val Asn Leu Ser Gly Asn Arg Tyr  
 180 185 190  
 Leu Val Phe Arg Asp Asn Val Ser Gln Gly Tyr Gly Gly Ala Ile Ser  
 195 200 205  
 Thr His Asn Leu Thr Leu Thr Thr Arg Gly Pro Ser Cys Phe Glu Asn  
 210 215 220  
 Asn His Ala Tyr His Asp Val Asn Ser Asn Gly Gly Ala Ile Ala Ile  
 225 230 235 240  
 Ala Pro Gly Gly Ser Ile Ser Ile Ser Val Lys Ser Gly Asp Leu Ile  
 245 250 255  
 Phe Lys Gly Asn Thr Ala Ser Gln Asp Gly Asn Thr Ile His Asn Ser  
 260 265 270  
 Ile His Leu Gln Ser Gly Ala Gln Phe Lys Asn Leu Arg Ala Val Ser  
 275 280 285  
 Glu Ser Gly Val Tyr Phe Tyr Asp Pro Ile Ser His Ser Glu Ser His  
 290 295 300  
 Lys Ile Thr Asp Leu Val Ile Asn Ala Pro Glu Gly Lys Glu Thr Tyr  
 305 310 315 320  
 Glu Gly Thr Ile Ser Phe Ser Gly Leu Cys Leu Asp Asp His Glu Val  
 325 330 335  
 Cys Ala Glu Asn Leu Thr Ser Thr Ile Leu Gln Asp Val Thr Leu Ala  
 340 345 350  
 Gly Gly Thr Leu Ser Leu Ser Asp Gly Val Thr Leu Gln Leu His Ser  
 355 360 365  
 Phe Lys Gln Glu Ala Ser Ser Thr Leu Thr Met Ser Pro Gly Thr Thr  
 370 375 380  
 Leu Leu Cys Ser Gly Asp Ala Arg Val Gln Asn Leu His Ile Leu Ile  
 385 390 395 400  
 Glu Asp Thr Asp Asn Phe Val Pro Val Arg Ile Arg Ala Glu Asp Lys  
 405 410 415  
 Asp Ala Leu Val Ser Leu Glu Lys Leu Lys Val Ala Phe Glu Ala Tyr  
 420 425 430  
 Trp Ser Val Tyr Asp Phe Pro Gln Phe Lys Glu Ala Phe Thr Ile Pro  
 435 440 445  
 Leu Leu Glu Leu Leu Gly Pro Ser Phe Asp Ser Leu Leu Leu Gly Glu  
 450 455 460  
 Thr Thr Leu Glu Arg Thr Gln Val Thr Thr Glu Asn Asp Ala Val Arg  
 465 470 475 480  
 Gly Phe Trp Ser Leu Ser Trp Glu Glu Tyr Pro Pro Ser Leu Asp Lys  
 485 490 495  
 Asp Arg Arg Ile Thr Pro Thr Lys Lys Thr Val Phe Leu Thr Trp Asn  
 500 505 510  
 Pro Glu Ile Thr Ser Thr Pro  
 515

&lt;210&gt;480

&lt;211&gt;522

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;480

Asn Cys Val Leu Leu Tyr Leu Phe Phe Tyr Ser Leu Ser Leu Ile Cys  
 1 5 10 15  
 Arg Ile Ile Trp Phe His Leu Tyr Val Gln Met Lys Thr Ser Ile Arg  
 20 25 30  
 Lys Phe Leu Ile Ser Thr Thr Leu Ala Pro Cys Phe Ala Ser Thr Ala  
 35 40 45  
 Phe Thr Val Glu Val Ile Met Pro Ser Glu Asn Phe Asp Gly Ser Ser  
 50 55 60  
 Gly Lys Ile Phe Pro Tyr Thr Thr Leu Ser Asp Pro Arg Gly Thr Leu  
 65 70 75 80  
 Cys Ile Phe Ser Gly Asp Leu Tyr Ile Ala Asn Leu Asp Asn Ala Ile  
 85 90 95

Ser Arg Thr Ser Ser Ser Cys Phe Ser Asn Arg Ala Gly Ala Leu Gln  
 100 105 110  
 Ile Leu Gly Lys Gly Gly Val Phe Ser Phe Leu Asn Ile Arg Ser Ser  
 115 120 125  
 Ala Asp Gly Ala Ala Ile Ser Ser Val Ile Thr Gln Asn Pro Glu Leu  
 130 135 140  
 Cys Pro Leu Ser Phe Ser Gly Phe Ser Gln Met Ile Phe Asp Asn Cys  
 145 150 155 160  
 Glu Ser Leu Thr Ser Asp Thr Ser Ala Ser Asn Val Ile Pro His Ala  
 165 170 175  
 Ser Ala Ile Tyr Ala Thr Thr Pro Met Leu Phe Thr Asn Asn Asp Ser  
 180 185 190  
 Ile Leu Phe Gln Tyr Asn Arg Ser Ala Gly Phe Gly Ala Ala Ile Arg  
 195 200 205  
 Gly Thr Ser Ile Thr Ile Glu Asn Thr Lys Lys Ser Leu Leu Phe Asn  
 210 215 220  
 Gly Asn Gly Ser Ile Ser Asn Gly Gly Ala Leu Thr Gly Ser Ala Ala  
 225 230 235 240  
 Ile Asn Leu Ile Asn Asn Ser Ala Pro Val Ile Phe Ser Thr Asn Ala  
 245 250 255  
 Thr Gly Ile Tyr Gly Gly Ala Ile Tyr Leu Thr Gly Gly Ser Met Leu  
 260 265 270  
 Thr Ser Gly Asn Leu Ser Gly Val Leu Phe Val Asn Asn Ser Ser Arg  
 275 280 285  
 Ser Gly Gly Ala Ile Tyr Ala Asn Gly Asn Val Thr Phe Ser Asn Asn  
 290 295 300  
 Ser Asp Leu Thr Phe Gln Asn Asn Thr Ala Ser Pro Gln Asn Ser Leu  
 305 310 315 320  
 Pro Ala Pro Thr Pro Pro Pro Thr Pro Pro Ala Val Thr Pro Leu Leu  
 325 330 335  
 Gly Tyr Gly Gly Ala Ile Phe Cys Thr Pro Pro Ala Thr Pro Pro Pro  
 340 345 350  
 Thr Gly Val Ser Leu Thr Ile Ser Gly Glu Asn Ser Val Thr Phe Leu  
 355 360 365  
 Glu Asn Ile Ala Ser Glu Gln Gly Gly Ala Leu Tyr Gly Lys Lys Ile  
 370 375 380  
 Ser Ile Asp Ser Asn Lys Ser Thr Ile Phe Leu Gly Asn Thr Ala Gly  
 385 390 395 400  
 Lys Gly Gly Ala Ile Ala Ile Pro Glu Ser Gly Glu Leu Ser Leu Ser  
 405 410 415  
 Ala Asn Gln Gly Asp Ile Leu Phe Asn Lys Asn Leu Ser Ile Thr Ser  
 420 425 430  
 Gly Thr Pro Thr Arg Asn Ser Ile His Phe Gly Lys Asp Ala Lys Phe  
 435 440 445  
 Ala Thr Leu Gly Leu Arg Lys Ala Ile Pro Tyr Thr Ser Met Ile Arg  
 450 455 460  
 Leu His Leu Met Ile Tyr Leu Cys Ile Arg Ser Arg Tyr Cys Gly Arg  
 465 470 475 480  
 Gln Ser Gln Ser Gln Cys Arg Trp Cys Val Phe Arg Asp Tyr Cys Leu  
 485 490 495  
 Phe Arg Arg Asn Pro His Cys Tyr Arg Ser Ser Asn Pro Cys Lys Cys  
 500 505 510  
 Tyr Ile Tyr Ile Lys Pro Lys Ala Arg Thr  
 515 520

&lt;210&gt;481

&lt;211&gt;85

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;481

Arg Ala Pro Pro Cys Ser Glu Ala Met Phe Ser Arg Asn Val Thr Leu  
 1 5 10 15  
 Phe Ser Pro Asp Ile Val Arg Leu Thr Pro Val Gly Gly Gly Val Ala  
 20 25 30  
 Gly Gly Val Gln Lys Met Ala Pro Pro Tyr Pro Asn Lys Gly Val Thr

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      35      40      45
Ala Gly Val Gly Gly Gly Val Gly Ala Gly Lys Glu Phe Cys Gly
      50      55      60
Asp Ala Val Leu Phe Trp Lys Val Arg Ser Leu Leu Leu Glu Asn Val
      65      70      75      80
Thr Phe Pro Leu Ala
      85
<210>482
<211>530
<212>PRT
<213>Chlamydia pneumoniae
<400>482
Phe Ile Ser Ala Ser Ala Ala Ala Thr Val Val Val Asn Pro Lys Ala
  1      5      10      15
Ser Ala Asp Gly Ala Tyr Ser Gly Thr Ile Val Phe Ser Gly Glu Thr
      20      25      30
Leu Thr Ala Thr Glu Ala Ala Thr Pro Ala Asn Ala Thr Ser Thr Leu
      35      40      45
Asn Gln Lys Leu Glu Leu Glu Gly Gly Thr Leu Ala Leu Arg Asn Gly
      50      55      60
Ala Thr Leu Asn Val His Asn Phe Thr Gln Asp Glu Lys Ser Val Val
      65      70      75      80
Ile Met Asp Ala Gly Thr Thr Leu Ala Thr Thr Asn Gly Ala Asn Asn
      85      90      95
Thr Asp Gly Ala Ile Thr Leu Asn Lys Leu Val Ile Asn Leu Asp Ser
      100      105      110
Leu Asp Gly Thr Lys Ala Ala Val Val Asn Val Gln Ser Thr Asn Gly
      115      120      125
Ala Leu Thr Ile Ser Gly Thr Leu Gly Leu Val Lys Asn Ser Gln Asp
      130      135      140
Cys Cys Asp Asn His Gly Met Phe Asn Lys Asp Leu Gln Gln Val Pro
      145      150      155      160
Ile Leu Glu Leu Lys Ala Thr Ser Asn Thr Val Thr Thr Thr Asp Phe
      165      170      175
Ser Leu Gly Thr Asn Gly Tyr Gln Gln Ser Pro Tyr Gly Tyr Gln Gly
      180      185      190
Thr Trp Glu Phe Thr Ile Asp Thr Thr Thr His Thr Val Thr Gly Asn
      195      200      205
Trp Lys Lys Thr Gly Tyr Leu Pro His Pro Glu Arg Leu Ala Pro Leu
      210      215      220
Ile Pro Asn Ser Leu Trp Ala Asn Val Ile Asp Leu Arg Ala Val Ser
      225      230      235      240
Gln Ala Ser Ala Ala Asp Gly Glu Asp Val Pro Gly Lys Gln Leu Ser
      245      250      255
Ile Thr Gly Ile Thr Asn Phe Phe His Ala Asn His Thr Gly Asp Ala
      260      265      270
Arg Ser Tyr Arg His Met Gly Gly Gly Tyr Leu Ile Asn Thr Tyr Thr
      275      280      285
Arg Ile Thr Pro Asp Ala Ala Leu Ser Leu Gly Phe Gly Gln Leu Phe
      290      295      300
Thr Lys Ser Lys Asp Tyr Leu Val Gly His Gly His Ser Asn Val Tyr
      305      310      315      320
Phe Ala Thr Val Tyr Ser Asn Ile Thr Lys Ser Leu Phe Gly Ser Ser
      325      330      335
Arg Phe Phe Ser Gly Gly Thr Ser Arg Val Thr Tyr Ser Arg Ser Asn
      340      345      350
Glu Lys Val Lys Thr Ser Tyr Thr Lys Leu Pro Lys Gly Arg Cys Ser
      355      360      365
Trp Ser Asn Asn Cys Trp Leu Gly Glu Leu Glu Gly Asn Leu Pro Ile
      370      375      380
Thr Leu Ser Ser Arg Ile Leu Asn Leu Lys Gln Ile Ile Pro Phe Val
      385      390      395      400
Lys Ala Glu Val Ala Tyr Ala Thr His Gly Gly Ile Gln Glu Asn Thr
      405      410      415

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Pro Glu Gly Arg Ile Phe Gly His Gly His Leu Leu Asn Val Ala Val  
                   420                  425                  430  
 Pro Val Gly Val Arg Phe Gly Lys Asn Ser His Asn Arg Pro Asp Phe  
                   435                  440                  445  
 Tyr Thr Ile Ile Val Ala Tyr Ala Pro Asp Val Tyr Arg His Asn Pro  
                   450                  455                  460  
 Asp Cys Asp Thr Thr Leu Pro Ile Asn Gly Ala Thr Trp Thr Ser Ile  
                   465                  470                  475                  480  
 Gly Asn Asn Leu Thr Arg Ser Thr Leu Leu Val Gln Ala Ser Ser His  
                   485                  490                  495  
 Thr Ser Val Asn Asp Val Leu Glu Ile Phe Gly His Cys Gly Cys Asp  
                   500                  505                  510  
 Ile Arg Arg Thr Ser Arg Gln Tyr Thr Leu Asp Ile Gly Ser Lys Leu  
                   515                  520                  525  
 Arg Phe  
                   530  
 <210>483  
 <211>280  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>483  
 Gly Met Pro Leu Ser Phe Lys Ser Ser Ser Phe Cys Leu Leu Ala Cys  
   1                  5                  10                  15  
 Leu Cys Ser Ala Ser Cys Ala Phe Ala Glu Thr Arg Leu Gly Gly Asn  
                   20                  25                  30  
 Phe Val Pro Pro Ile Thr Asn Gln Gly Glu Glu Ile Leu Leu Thr Ser  
                   35                  40                  45  
 Asp Phe Val Cys Ser Asn Phe Leu Gly Ala Ser Phe Ser Ser Ser Phe  
                   50                  55                  60  
 Ile Asn Ser Ser Ser Asn Leu Ser Leu Leu Gly Lys Gly Leu Ser Leu  
                   65                  70                  75                  80  
 Thr Phe Thr Ser Cys Gln Ala Pro Thr Asn Ser Asn Tyr Ala Leu Leu  
                   85                  90                  95  
 Ser Ala Ala Glu Thr Leu Thr Phe Lys Asn Phe Ser Ser Ile Asn Phe  
                   100                  105                  110  
 Thr Gly Asn Gln Ser Thr Gly Leu Gly Gly Leu Ile Tyr Gly Lys Asp  
                   115                  120                  125  
 Ile Val Phe Gln Ser Ile Lys Asp Leu Ile Phe Thr Thr Asn Arg Val  
                   130                  135                  140  
 Ala Tyr Ser Pro Ala Ser Val Thr Thr Ser Ala Thr Pro Ala Ile Thr  
                   145                  150                  155                  160  
 Thr Val Thr Thr Gly Ala Ser Ala Leu Gln Pro Thr Asp Ser Leu Thr  
                   165                  170                  175  
 Val Glu Asn Ile Ser Gln Ser Ile Lys Phe Phe Gly Asn Leu Ala Asn  
                   180                  185                  190  
 Phe Gly Ser Ala Ile Ser Ser Ser Pro Thr Ala Val Val Lys Phe Ile  
                   195                  200                  205  
 Asn Asn Thr Ala Thr Met Ser Phe Ser His Asn Phe Thr Ser Ser Gly  
                   210                  215                  220  
 Gly Gly Val Ile Tyr Gly Gly Ser Ser Leu Leu Phe Glu Asn Asn Ser  
                   225                  230                  235                  240  
 Gly Cys Ile Ile Phe Thr Ala Asn Ser Cys Val Asn Ser Leu Lys Gly  
                   245                  250                  255  
 Val Thr Pro Ser Ser Gly Thr Tyr Ala Leu Gly Ser Gly Gly Ala Ser  
                   260                  265                  270  
 Ala Ser Leu Arg Glu Leu Ser Asn  
                   275                  280  
 <210>484  
 <211>82  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>484  
 Ile Thr Pro Pro Pro Asp Glu Val Lys Leu Trp Glu Lys Leu Met Val  
   1                  5                  10                  15

Ala Val Leu Leu Met Asn Leu Thr Thr Ala Val Gly Glu Leu Leu Ile  
                   20                  25                  30  
 Ala Glu Pro Lys Leu Ala Arg Phe Pro Lys Asn Leu Ile Asp Trp Asp  
                   35                  40                  45  
 Met Phe Ser Thr Val Ser Glu Ser Val Gly Trp Arg Ala Glu Ala Pro  
                   50                  55                  60  
 Val Val Thr Val Val Ile Ala Gly Val Ala Asp Val Val Thr Asp Ala  
                   65                  70                  75                  80  
 Gly Glu

&lt;210&gt;485

&lt;211&gt;492

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;485

Lys Gln Phe Trp Met His His Leu His Arg Gln Leu Leu Cys Glu Gln  
   1                  5                  10                  15  
 Leu Lys Arg Arg His Pro Phe Ile Arg Asn Leu Cys Phe Arg Lys Trp  
                   20                  25                  30  
 Arg Ser Ile Cys Ile Pro Thr Gly Thr Phe Glu Leu Lys Asn Asn Gln  
                   35                  40                  45  
 Gly Lys Cys Thr Phe Ser Tyr Asn Gly Thr Pro Asn Asp Ala Gly Ala  
                   50                  55                  60  
 Ile Tyr Ala Glu Thr Cys Asn Ile Val Gly Asn Gln Gly Ala Leu Leu  
                   65                  70                  75                  80  
 Leu Asp Ser Asn Thr Ala Ala Arg Asn Gly Gly Ala Ile Cys Ala Lys  
                   85                  90                  95  
 Val Leu Asn Ile Gln Gly Arg Gly Pro Ile Glu Phe Ser Arg Asn Arg  
                   100                  105                  110  
 Ala Glu Lys Gly Gly Ala Ile Phe Ile Gly Pro Ser Val Gly Asp Pro  
                   115                  120                  125  
 Ala Lys Gln Thr Ser Thr Leu Thr Ile Leu Ala Ser Glu Gly Asn Ile  
                   130                  135                  140  
 Ala Phe Gln Gly Asn Met Leu Asn Thr Lys Pro Gly Ile Arg Asn Ala  
                   145                  150                  155                  160  
 Ile Thr Val Glu Ala Gly Gly Glu Ile Val Ser Leu Ser Ala Gln Gly  
                   165                  170                  175  
 Gly Ser Arg Leu Val Phe Tyr Asp Pro Ile Thr His Ser Leu Pro Thr  
                   180                  185                  190  
 Thr Ser Pro Ser Asn Lys Asp Ile Thr Ile Asn Ala Asn Gly Ala Ser  
                   195                  200                  205  
 Gly Ser Val Val Phe Thr Ser Lys Gly Leu Ser Ser Thr Glu Leu Leu  
                   210                  215                  220  
 Leu Pro Ala Asn Thr Thr Thr Ile Leu Leu Gly Thr Val Lys Ile Ala  
                   225                  230                  235                  240  
 Ser Gly Glu Leu Lys Ile Thr Asp Asn Ala Val Val Asn Val Leu Gly  
                   245                  250                  255  
 Phe Ala Thr Gln Gly Ser Gly Gln Leu Thr Leu Gly Ser Gly Gly Thr  
                   260                  265                  270  
 Leu Gly Leu Ala Thr Pro Thr Gly Ala Pro Ala Ala Val Asp Phe Thr  
                   275                  280                  285  
 Ile Gly Lys Leu Ala Phe Asp Pro Phe Ser Phe Leu Lys Arg Asp Phe  
                   290                  295                  300  
 Val Ser Ala Ser Val Asn Ala Gly Thr Lys Asn Val Thr Leu Thr Gly  
                   305                  310                  315                  320  
 Ala Leu Val Leu Asp Glu His Asp Val Thr Asp Leu Tyr Asp Met Val  
                   325                  330                  335  
 Ser Leu Gln Ser Pro Val Ala Ile Pro Ile Ala Val Phe Lys Gly Ala  
                   340                  345                  350  
 Thr Val Thr Lys Thr Gly Phe Pro Asp Gly Glu Ile Ala Thr Pro Ser  
                   355                  360                  365  
 His Tyr Gly Tyr Gln Gly Lys Trp Ser Tyr Thr Trp Ser Arg Pro Leu  
                   370                  375                  380  
 Leu Ile Pro Ala Pro Asp Gly Gly Phe Pro Gly Gly Pro Ser Pro Ser

385 390 395 400  
 Ala Asn Thr Leu Tyr Ala Val Trp Asn Ser Asp Thr Leu Val Arg Ser  
 405 410 415  
 Thr Tyr Ile Leu Asp Pro Glu Arg Tyr Gly Glu Ile Val Ser Asn Ser  
 420 425 430  
 Leu Trp Ile Ser Phe Leu Gly Asn Gln Ala Phe Ser Asp Ile Leu Gln  
 435 440 445  
 Asp Val Leu Leu Ile Asp His Pro Gly Leu Ser Ile Thr Ala Lys Ala  
 450 455 460  
 Leu Gly Ala Tyr Val Glu His Thr Pro Arg Gln Gly His Glu Gly Phe  
 465 470 475 480  
 Ser Gly Arg Tyr Gly Gly Tyr Gln Val Arg Tyr Leu  
 485 490

&lt;210&gt;486

&lt;211&gt;264

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;486

Gly Leu Phe Arg Ser Leu Trp Arg Leu Pro Ser Ala Leu Ser Met Asn  
 1 5 10 15  
 Tyr Thr Asp His Thr Thr Leu Gly Leu Ser Phe Gly Gln Leu Tyr Gly  
 20 25 30  
 Lys Thr Asn Ala Asn Pro Tyr Asp Ser Arg Cys Ser Glu Gln Met Tyr  
 35 40 45  
 Leu Leu Ser Phe Phe Gly Gln Phe Pro Ile Val Thr Gln Lys Ser Glu  
 50 55 60  
 Ala Leu Ile Ser Trp Lys Ala Ala Tyr Gly Tyr Ser Lys Asn His Leu  
 65 70 75 80  
 Asn Thr Thr Tyr Leu Arg Pro Asp Lys Ala Pro Lys Ser Gln Gly Gln  
 85 90 95  
 Trp His Asn Asn Ser Tyr Tyr Val Leu Ile Ser Ala Glu His Pro Phe  
 100 105 110  
 Leu Asn Trp Cys Leu Leu Thr Arg Pro Leu Ala Gln Ala Trp Asp Leu  
 115 120 125  
 Ser Gly Phe Ile Ser Ala Glu Phe Leu Gly Gly Trp Gln Ser Lys Phe  
 130 135 140  
 Thr Glu Thr Gly Asp Leu Gln Arg Ser Phe Ser Arg Gly Lys Gly Tyr  
 145 150 155 160  
 Asn Val Ser Leu Pro Ile Gly Cys Ser Ser Gln Trp Phe Thr Pro Phe  
 165 170 175  
 Lys Lys Ala Pro Ser Thr Leu Thr Ile Lys Leu Ala Tyr Lys Pro Asp  
 180 185 190  
 Ile Tyr Arg Val Asn Pro His Asn Ile Val Thr Val Val Ser Asn Gln  
 195 200 205  
 Glu Ser Thr Ser Ile Ser Gly Ala Asn Leu Arg Arg His Gly Leu Phe  
 210 215 220  
 Val Gln Ile His Asp Val Val Asp Leu Thr Glu Asp Thr Gln Ala Phe  
 225 230 235 240  
 Leu Asn Tyr Thr Phe Asp Gly Lys Asn Gly Phe Thr Asn His Arg Val  
 245 250 255  
 Ser Thr Gly Leu Lys Ser Thr Phe  
 260

&lt;210&gt;487

&lt;211&gt;357

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;487

Asn Arg Gln Arg Leu His Ala Pro Leu Ser Gln Gly Ser His Cys His  
 1 5 10 15  
 Ser Tyr Leu Ala Asp Leu Thr His Glu Glu Leu Lys Ile Leu Leu Phe  
 20 25 30  
 Ser Ala Phe Val Asp Ala Lys Asn Ile Ser Lys Lys Glu Leu Arg Glu  
 35 40 45  
 Val Ser Leu Asn Phe Ala Asn Asp Thr Ser Val Glu Ser Trp Leu Arg

50 55 60  
 Phe Leu Leu Leu Val Ser Tyr Asp Glu Lys Glu Lys Asp Val Val Val  
 65 70 75 80  
 Val Cys Asn His Ser Glu Pro Asn Ile Leu Gly Leu Pro Pro Glu Ala  
 85 90 95  
 Val Ser Gln Leu Ile Glu Glu Leu Ser Asp Glu Gly Tyr Ser Tyr Leu  
 100 105 110  
 Asn Val Val Arg Cys Asp Leu Ser Gly Glu Thr Thr Val Gln Gln Arg  
 115 120 125  
 Leu Leu Leu Asn Ala Asp Glu Gly Arg Ser Met Thr Val Val Ile Ser  
 130 135 140  
 Glu Leu Pro Glu Gly His Pro Asp Ile Arg Asn Leu Gln Leu Ala Ser  
 145 150 155 160  
 Glu Arg Ile Phe Val Ser Arg Glu Lys Glu Ala Ala Asp Ala Tyr Ala  
 165 170 175  
 Ser Gly Cys Lys Val Val Ala Phe Asp Asp Glu His Leu Pro Trp Val  
 180 185 190  
 Ser Ser His Ile Ala Tyr Ala Glu Glu Ile Arg Glu Lys Gln Glu Gln  
 195 200 205  
 Thr Met Gln Gly Ser Leu Thr Glu Glu Gln Leu Gly Ala Leu Leu Cys  
 210 215 220  
 Asn Thr Val Ser Thr Glu Lys Asn Leu Ala Phe Ala Leu Asp Ala Val  
 225 230 235 240  
 Ile Lys Gln Ser Val Trp Arg Phe Arg Asn Pro Asp Leu Phe Ala Tyr  
 245 250 255  
 Glu Arg Glu Ala Leu Glu Ala Ser Val Thr Asp Ala Leu Val Ser Tyr  
 260 265 270  
 Val Ser Asn Leu Asp Met Ile Pro Tyr Thr Ser Ser Gln Gly Ile Val  
 275 280 285  
 Ile Glu Asp Ser Ser Ile Val Arg Thr Ser Gln Glu His Thr Leu Ile  
 290 295 300  
 Val Asn Cys Ala Ala Phe Asp Lys Leu Ala Ser Gln Ile Glu Phe Leu  
 305 310 315 320  
 Cys Pro Ser Asp Val Leu Pro Ile Ser Gly Lys Asp Pro Leu Ile Ser  
 325 330 335  
 Asp Asp Glu Asp Glu Glu Leu Asn Pro Lys Val Ser Ser Ala Ala Asp  
 340 345 350  
 Ser Lys Asp Lys Thr  
 355

&lt;210&gt;488

&lt;211&gt;347

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;488

Ile Pro Cys Thr Phe Glu Ser Lys Arg Lys Phe Leu Met Thr His Cys  
 1 5 10 15  
 Leu His Gly Trp Phe Ser Val Val Arg His His Phe Val Gln Ala Phe  
 20 25 30  
 Asn Phe Ser Arg Pro Leu Tyr Ser Arg Ile Thr His Phe Ala Leu Gly  
 35 40 45  
 Val Ile Lys Ala Ile Pro Ile Val Gly His Leu Val Met Gly Val Asp  
 50 55 60  
 Trp Leu Ile Ser His Cys Phe Glu Arg Gly Val Ser His Pro Gly Phe  
 65 70 75 80  
 Pro Ser Asp Ile Ala Pro Ile Leu Lys Val Glu Lys Ile Ala Gly Arg  
 85 90 95  
 Asp His Ile Ser Arg Ile Glu Asn Gln Leu Lys Ser Leu Arg Lys Thr  
 100 105 110  
 Ile Glu Val Glu Asp Leu Asp Lys Val His Gly Gln Tyr Gln Glu Asn  
 115 120 125  
 Pro Tyr Ala Asp Met Ala Ser Ser Glu Val Leu Lys Leu Asp Lys Gly  
 130 135 140  
 Val His Val Ser Glu Leu Gly Lys Ala Phe Ser Arg Val Arg Asn Arg  
 145 150 155 160

Ile Thr Arg Ser Tyr Ser Tyr Ala Pro Thr Pro Gln Leu Asp Ser Ile  
 165 170 175  
 Ala Ile Val Gly Ile Asp Leu Val Ser Pro Glu Glu Gln Glu Asn Leu  
 180 185 190  
 Val Arg Leu Ala Asn Glu Val Ile Gln Leu Tyr Pro Lys Ser Lys Thr  
 195 200 205  
 Thr Leu Tyr Leu Leu Ile Asp Phe Asn Xaa Glu Trp Val Gly Asp Ile  
 210 215 220  
 Ser Ser Asp Lys Glu Lys Gln Leu Arg Ser Leu Gly Leu His Ser Glu  
 225 230 235 240  
 Val Gln Cys Leu Ser Val Leu Glu Pro Gln Gly Ala Glu Gly Glu Asp  
 245 250 255  
 Thr Lys His Phe Asp Leu Met Val Gly Cys Tyr Gly Lys Asp Ser Tyr  
 260 265 270  
 Leu Arg Glu Gly Lys Ile Leu Gln Gln Ala Leu Gly Thr Ser Leu Gly  
 275 280 285  
 Thr Val Pro Trp Val Asn Val Met His Thr Leu Pro Ser Arg Tyr Arg  
 290 295 300  
 Ser Arg Leu Ser Leu Pro Ile Asn Thr Glu Lys Asp Lys Thr Glu Leu  
 305 310 315 320  
 Tyr Lys Glu Ile Ser Arg Thr His His Gln Leu His Thr Leu Gly Met  
 325 330 335  
 Gly Leu Gly Ala Gln Asp Phe Arg Asp Cys Ser  
 340 345

&lt;210&gt;489

&lt;211&gt;636

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;489

Val Phe Leu Pro Ser Arg Val Met Ala Ser Cys Leu Ser Ala Trp Phe  
 1 5 10 15  
 Ser Ile Val Arg Glu His Phe Tyr Arg Ala Phe Asp Phe Ser Leu Pro  
 20 25 30  
 Phe Cys Ala Arg Ile Thr Glu Phe Val Leu Gly Val Ile Lys Gly Ile  
 35 40 45  
 Pro Val Val Gly His Ile Ile Val Gly Ile Glu Trp Leu Val Ser Arg  
 50 55 60  
 Tyr Leu Glu Ser Phe Val Thr Lys Pro Thr Phe Val Ser Asp Val Val  
 65 70 75 80  
 Ser Leu Leu Lys Thr Glu Lys Val Ala Gly Arg Asp His Ile Ala Arg  
 85 90 95  
 Val Val Glu Thr Leu Lys Arg Gln Arg Val Ala Val Ala Pro Glu Asp  
 100 105 110  
 Glu Asp Lys Val His Gly Lys Ile Pro Val His Pro Phe Gly Gly Ile  
 115 120 125  
 Gln Pro Val Glu Val Leu Thr Leu Tyr Pro Glu Val Gln Asp Ala Thr  
 130 135 140  
 Leu Gly Leu Ala Phe Ser Lys Ile Arg Asn Arg Val Arg Gln Ala Tyr  
 145 150 155 160  
 Leu Gln Ala Pro Arg Pro Lys Leu Gln Lys Ile Tyr Ile Ile Gly Asn  
 165 170 175  
 Asp Met Asn Pro Phe Glu Val Asp Asp Phe Leu His Leu Ala Arg Leu  
 180 185 190  
 Cys Asn Glu Thr Gln Arg Leu Tyr Pro Asp Ala Thr Ile Ser Leu Tyr  
 195 200 205  
 Leu Thr Ala Ser Gly Gly Arg Asn Ala Met Asp Lys Lys Asn Arg Lys  
 210 215 220  
 Leu Leu Ser Asp Cys Glu Leu Asn Pro Lys Ile Ala Cys Leu Asp Phe  
 225 230 235 240  
 Asn Gln Gly Asp Val Val Lys Gln Ala Thr Cys Asp Cys Trp Met Val  
 245 250 255  
 Tyr His Gly Glu Asn Asp Gln Gly Thr Leu Asn Gln Ile Gln Glu Glu  
 260 265 270  
 Leu Glu Lys Ser Gly Glu Glu Thr Pro Trp Ile His Val Gly Gln Lys

275 280 285  
 Pro Leu Ser Gln Ser Leu Trp Asp Phe Ser Pro Phe Ser Ser Leu Glu  
 290 295 300  
 Met Lys Gly Asp Lys Glu Lys Ala Leu Glu Tyr Ser Glu Leu Glu Lys  
 305 310 315 320  
 Glu Gln Leu Tyr Ser Arg Leu Val Tyr Val Gly Glu Arg Ser Ser Val  
 325 330 335  
 Leu Ser Leu Gly Phe Gly Asp Ser Arg Ser Gly Ile Leu Met Asp Pro  
 340 345 350  
 Lys Arg Val His Ala Pro Leu Ser Glu Gly His Tyr Cys His Ser Tyr  
 355 360 365  
 Leu Ala Asp Leu Glu Asn Pro Gly Leu Gln Lys Thr Ile Leu Ala Ala  
 370 375 380  
 Phe Leu Asn Pro Lys Glu Leu Ser Ser Thr Ile Leu Gln Pro Ile Ser  
 385 390 395 400  
 Leu Asn Leu Ile Leu Asn Ser Lys Thr Tyr Leu Arg Gln His Phe Gly  
 405 410 415  
 Phe Phe Glu Arg Met Ser Arg Ser Asp Arg Asn Val Val Val Val  
 420 425 430  
 Cys Asp Ser Trp Trp Gly Thr Asp Trp Lys Glu Glu Pro Ser Phe Gln  
 435 440 445  
 His Phe Ile Met Glu Leu Glu Cys Arg Gly Tyr Ser His Phe Asn Ile  
 450 455 460  
 Phe Ala Phe Arg Ser Asn Ser Met Cys Val Glu Arg Arg Ile Leu  
 465 470 475 480  
 Asn Glu Ser Ser Gln Glu Lys Ala Phe Thr Met Ile Phe Cys Glu Asp  
 485 490 495  
 Ser Val Ser Gln Gly Asp Ile Arg Cys Leu His Leu Ala Ser Glu Gly  
 500 505 510  
 Met Leu Cys Gly Lys Glu Cys Tyr Ala Val Asp Val Tyr Thr Ser Gly  
 515 520 525  
 Cys Ala Asn Phe Met Met Glu Glu Val Leu Thr Leu Glu Arg Glu Ser  
 530 535 540  
 Asn Leu Trp Asn Arg Lys His Gly Leu Trp Lys Arg Glu Val Arg Lys  
 545 550 555 560  
 Gln Lys Gln Glu Ala Ala Leu Asp Gln Asp Glu Ser Glu Ile Tyr Val  
 565 570 575  
 Cys Asn Gln Leu Thr Ala Gln Gln Asn Phe Ala Cys Ser Leu Asp Ala  
 580 585 590  
 Ala Ile Arg Gln Ser Ile Trp Arg Ser Arg Met Pro Glu Leu Leu Ser  
 595 600 605  
 Ile Glu Arg Arg Ala Leu Gly Glu Gln Leu Phe Thr Thr Val His His  
 610 615 620  
 Tyr Leu Thr Thr Gln Lys Lys Ile Leu Arg Gly Ile  
 625 630 635  
 <210>490  
 <211>703  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>490  
 Tyr Phe Leu Cys Cys Tyr Leu Lys Leu Phe Val Ser Asn Phe Ile Phe  
 1 5 10 15  
 Phe Val Xaa Met Pro Ile Pro Tyr Ile Ser Ser Trp Ile Ser Thr Val  
 20 25 30  
 Arg Gln His Phe Val Lys Ala Phe Asp Phe Ser Arg Pro Phe Cys Ser  
 35 40 45  
 Arg Val Thr Asn Phe Ala Leu Gly Val Ile Lys Ala Ile Pro Ile Val  
 50 55 60  
 Gly His Ile Val Met Gly Met Glu Trp Leu Val Ser Ser Cys Val Ala  
 65 70 75 80  
 Gly Ile Ile Thr Arg Ser Ser Phe Thr Ser Asp Val Val Gln Ile Val  
 85 90 95  
 Lys Thr Glu Lys Ala Leu Gly Arg Asp His Ile Ser Arg Val Ala Glu  
 100 105 110

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Ile Leu Gln Arg Glu Arg Gly Thr Ile Thr Pro Glu Asn Gln Asp Lys
    115          120          125
Val His Gly Lys Phe Pro Val Cys Pro Phe Gly Arg Leu Lys Ser Glu
    130          135          140
Glu Thr Leu Lys Leu Lys Pro Gly Glu Arg Gly Gly Thr Leu Asp Thr
    145          150          155          160
Val Phe Ser Pro Ile Arg Thr Arg Val Thr Arg Ala Tyr Leu Gln Ala
    165          170          175
Pro Arg Pro Glu Ile Arg Thr Ile Ser Ile Val Gly Ser Lys Leu Lys
    180          185          190
Thr Pro Gln Asp Phe Ser Gln Phe Val Ser Leu Ala Asn Glu Thr Gln
    195          200          205
Arg Leu His Pro Glu Ala Leu Val Cys Leu Tyr Leu Thr Gly Leu Asn
    210          215          220
Arg Glu Ser Gln Met Cys Asp Thr Thr Thr Ala Glu Lys Lys Gln Tyr
    225          230          235          240
Leu His Asn Ser Gly Leu Asp Ser Arg Ile Gln Cys Lys Asp Ser Lys
    245          250          255
Glu Asp Asp Ala Gly Ser Pro Glu Asn Pro Glu Leu Trp Ile Gly Tyr
    260          265          270
Tyr Ser Arg Glu Gln Gln His Asn Ile Asp Gly Gln Tyr Ile Gln Gln
    275          280          285
Cys Leu Gly Lys Ser Ala Asp Pro Ile Pro Trp Ile His Val Thr Glu
    290          295          300
Asp Thr Lys Asp Phe Tyr Tyr Pro Pro Asn Phe Thr Ser Tyr Ser His
    305          310          315          320
Thr Arg Gln Ser Thr Asp Pro Thr Ser Pro Pro Arg Leu Pro Glu Ser
    325          330          335
Glu Gly Asp Lys Asp Ser Leu Tyr Gly Gln Leu Ser Arg Ser Tyr His
    340          345          350
His Glu Tyr Met Leu Gly Leu Gly Leu Lys Pro Glu Asp Ala Gly Leu
    355          360          365
Leu Met Asp Pro Asp Arg Ile Tyr Ala Pro Leu Ser Gln Gly His Tyr
    370          375          380
Cys His Ser Tyr Leu Ala Asp Ile Glu Asn Glu Asp Leu Arg Thr Leu
    385          390          395          400
Val Leu Ser Pro Phe Leu Asp Pro Gly Asn Leu Ser Ser Glu Asp Leu
    405          410          415
Arg Pro Val Ala Phe Asn Ile Ala Arg Leu Pro Leu Glu Leu Asp Ser
    420          425          430
Leu Phe Phe Arg Leu Val Ala Gly Gln Gln Glu Gly Arg Asn Ile Val
    435          440          445
Thr Leu Ala His Gly Thr Pro Arg Pro Glu Asp Leu Asp Pro Asp Ser
    450          455          460
Met Asn Ile Leu Thr Arg Arg Leu Gln Met Ser Gly Tyr Ser Tyr Leu
    465          470          475          480
Asn Ile Phe Ser Tyr Lys Ser Arg Lys Met Ile Val Lys Glu Arg Gln
    485          490          495
Phe Phe Gly Asp Arg Ser Glu Gly Lys Ser Phe Thr Leu Ile Leu Phe
    500          505          510
Glu Asp Pro Ile Ser Ala Ala Asp Phe Arg Cys Leu Gln Leu Ala Ala
    515          520          525
Glu Gly Met Val Ala Lys Asp Leu Pro Ser Val Ala Asp Ile Cys Ala
    530          535          540
Ser Gly Cys Ser Cys Ile Gln Phe Ser Glu Met Gln Ser Pro Gln Ala
    545          550          555          560
Ile Glu Tyr Arg Gln Trp Glu Ala Arg Val Glu Asp Glu Ala Gly Glu
    565          570          575
Glu Ala Arg Glu Pro Val Ile Tyr Ser Gln Asp Gln Leu Ser Ser Met
    580          585          590
Leu Thr Thr Gln Gln Asn Phe Val Phe Ser Leu Asp Ala Val Val Lys
    595          600          605
Gln Ala Ile Trp Arg Phe Arg Ser Lys Gly Leu Leu Thr Met Glu Arg
    610          615          620

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Lys Ala Leu Gly Glu Glu Phe Leu Thr Ala Ile Phe Ser Tyr Leu Gly  
 625 630 635 640  
 Ser Gln Glu Arg Asn Glu Asn Met Gly Lys Arg Thr Thr Glu Glu His  
 645 650 655  
 Glu Val Val Ile Ser Phe Glu Glu Leu Asp Arg Met Val Gln Val Leu  
 660 665 670  
 Pro Ala Glu Val Pro Ala Asp Ser Gly Asn Asp Pro Thr His Pro Val  
 675 680 685  
 Pro Asn Pro Asp Ser Asn Pro Asp Ser Ser Gln Asn Glu Gly Ser  
 690 695 700

&lt;210&gt;491

&lt;211&gt;148

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;491

Ser Thr Lys Ile Gln Met His Pro Gly Leu Arg Asn Trp Arg Thr Ser  
 1 5 10 15  
 Thr Asn Lys Leu Arg Glu Glu Gly Ser Val Ser Phe Arg Glu Tyr Phe  
 20 25 30  
 Arg Ala Tyr Met Cys Asp Lys Ile Val Ala Gln Lys Asn Phe Leu Phe  
 35 40 45  
 Thr Leu Asp Ala Val Ile Lys Gln Ala Gly Trp Arg Ser Gln Glu Lys  
 50 55 60  
 Leu Asn Leu Phe Tyr Val Glu Ser Gln Ala Leu Gly Arg Glu Ile Lys  
 65 70 75 80  
 Val Ser Leu Glu Glu Tyr Ile Gln Ser Met Val Gly Ile Leu Gly Ser  
 85 90 95  
 Gln Arg Thr Lys Lys Ser Phe Lys Phe Ser Val Asp Phe Thr Pro Leu  
 100 105 110  
 Glu Gln Ala Leu Gln Glu Arg Cys Ser Ser Asp Asp Asp Glu Asp Ala  
 115 120 125  
 Thr Ala Ala Ser Thr Ala Thr Gly Ala Thr Ala Ser Pro Thr Asp Met  
 130 135 140  
 His Glu Asp Glu

145

&lt;210&gt;492

&lt;211&gt;283

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;492

Val Ile Gln His Leu Leu Asn Phe Ala Leu Glu Glu Thr Pro Ser Ile  
 1 5 10 15  
 Ser Val Gln Tyr Gln Glu Gln Glu Lys Leu Ser Pro Cys Asp His Ser  
 20 25 30  
 Pro Glu Ile Gly Lys Lys Lys Arg Trp Asn Lys Leu Glu Ser Phe Ser  
 35 40 45  
 Thr Tyr Cys Ser Leu Phe Met Ser Val Lys Asp His Tyr Lys Leu Asn  
 50 55 60  
 Leu Gly Ile Gln Asn Ser Leu Ser Gly Trp Leu Leu Asp Pro Tyr Arg  
 65 70 75 80  
 Val Cys Ala Pro Leu Ser Ser Pro Tyr Ser Cys Pro Ser Tyr Leu Leu  
 85 90 95  
 Asp Leu Gln Asn Lys Glu Leu Arg Arg Ser Leu Leu Ser Thr Phe Leu  
 100 105 110  
 Asp Pro Lys Asn Leu Thr Ser Glu Thr Phe Arg Ser Val Ser Ile Asn  
 115 120 125  
 Phe Gly Asn Ser Ser Phe Gly Gln Arg Trp Ser Glu Phe Leu Ser Arg  
 130 135 140  
 Val Leu His Asp Glu Lys Glu Lys His Val Ala Val Val Cys Asn Asp  
 145 150 155 160  
 Ala Lys Leu Leu Glu Glu Gly Leu Ser Pro Glu Ala Leu Ser Leu Leu  
 165 170 175  
 Glu Glu Asp Leu Arg Glu Ser Gly Tyr Ser Tyr Leu Asn Ile Leu Ser  
 180 185 190



Val Ser Pro Glu Gly Val Ser Lys Val Gln Glu Arg Gln Ile Leu Arg  
 195 200 205  
 Arg Asp Leu Gln Gly Arg Ser Phe Thr Val Met Ile Thr Asp Leu Pro  
 210 215 220  
 Leu Gly Ser Glu Asp Ile Arg Ser Leu Gln Leu Ala Ser Asp Arg Ile  
 225 230 235 240  
 Leu Val Ser Ser Ser Leu Asp Ala Ala Asp Ala Cys Ala Ser Gly Cys  
 245 250 255  
 Lys Val Leu Val Tyr Glu Asn Pro Asn Ala Ser Trp Ala Gln Glu Leu  
 260 265 270  
 Glu Asn Phe Tyr Lys Gln Val Glu Arg Arg Arg  
 275 280

&lt;210&gt;493

&lt;211&gt;169

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;493

Leu Glu Ser Pro His Phe Pro Arg Arg Ser Arg Gln Ser Thr Arg Glu  
 1 5 10 15  
 Asn Pro Arg Arg Ser Leu Arg Arg Tyr His Thr His Arg Asn Cys Pro  
 20 25 30  
 Thr Phe Ser Leu Ile Glu Glu Leu Ser Thr Val Asp Glu Ala Leu Gln  
 35 40 45  
 Gly Val Arg Ser Arg Leu Thr Tyr Ala Tyr Arg Ser Val Glu Lys Pro  
 50 55 60  
 Met Ile Gln Asp Leu Ala Leu Val Gly Phe Gly Leu Arg Asp Ser Ala  
 65 70 75 80  
 Asp Leu Ile Asn Phe Val Arg Leu Ala Asn Gly Val Gln Asn His Tyr  
 85 90 95  
 Pro His Thr Lys Val Lys Leu Tyr Leu Ala Lys Asn Leu Ala Asp Val  
 100 105 110  
 Trp Asp Cys Glu Ile Ser Glu Glu Lys Gly Gln Leu Arg Ala Leu  
 115 120 125  
 Gly Leu Asp Pro Lys Ile Glu Ser Ile Ser Leu Thr Ser Ala Gly Leu  
 130 135 140  
 Pro Ser Val Pro Glu Val Ala Thr Val Asp Phe Met Ile Thr Cys Tyr  
 145 150 155 160  
 Gly Lys Asp Gln Glu Val Gln Asp Pro  
 165

&lt;210&gt;494

&lt;211&gt;135

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;494

Ile Ser Thr Val Ala Cys Pro Ser Ile Ser Ser Trp Phe Thr Val Val  
 1 5 10 15  
 Arg Gln His Phe Val Asn Ala Phe Asp Phe Thr His Pro Val Cys Ser  
 20 25 30  
 Arg Ile Thr Asn Phe Ala Leu Gly Ile Ile Lys Ala Ile Pro Val Leu  
 35 40 45  
 Gly His Ile Val Met Gly Ile Glu Trp Leu Ile Ser Trp Ile Pro Arg  
 50 55 60  
 His Thr Val Arg His Gly Met Phe Thr Ser Asp Val Ser Ser Ala Ile  
 65 70 75 80  
 Lys Val Glu Gln Thr Arg Gly His Asn Cys Leu Ala Pro Leu Glu Ala  
 85 90 95  
 Tyr Leu Ser Ser Leu Arg Val Pro Ile Ser Gln Glu Asp Leu Gly Lys  
 100 105 110  
 Val His Gly Arg Thr Pro Glu Asp Pro Phe Val Asp Ile Thr Pro Thr  
 115 120 125  
 Glu Ile Val Gln Pro Ser Pro  
 130 135

&lt;210&gt;495

&lt;211&gt;156

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;495

Phe Leu Ser Ala Leu Asp Ala Ala Asp Ala Cys Ala Ser Glu Cys Lys  
 1 5 10 15  
 Ile Leu Glu Tyr Glu Asp Pro Glu Gln Glu Trp Ala Gln Gln Tyr Ala  
 20 25 30  
 Ser Phe Tyr Arg Asn Ile Asp Arg Ala Gly Asp Leu Gln Arg Gln Gly  
 35 40 45  
 Ile Pro Gly Glu Pro Leu Gly Val Ser Ala Ser Thr Arg Val Val Leu  
 50 55 60  
 Glu Lys Asp Ile Val Phe Asn Leu Asn Ala Val Ile Gln Gln Ala Met  
 65 70 75 80  
 Trp Lys Phe Lys Lys Arg Asp Leu Phe Ala Val Glu Ser Gln Ala Leu  
 85 90 95  
 Gly Asp Asp Met Arg Arg Ala Leu Glu Gly Tyr Ile Gly Ser Ser Leu  
 100 105 110  
 Leu Val Glu Gly Thr Ile Gln Pro Gln Val Ala Cys Asn Val Asn Val  
 115 120 125  
 Ser Phe Ala Thr Leu Asp Glu Ala Val Cys Ala Ala Cys Asp Ser Ala  
 130 135 140  
 Gln Asp Ala Pro Ser Glu Glu Asn Asn Thr Asp Asp  
 145 150 155

&lt;210&gt;496

&lt;211&gt;542

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;496

Leu Ile Phe Tyr Leu Phe Leu Asn Leu Tyr Ile Ala Cys Val Arg Phe  
 1 5 10 15  
 His Phe Gln Cys Trp Phe Asp Pro Met Ala Cys Tyr Ile Ser Ile Trp  
 20 25 30  
 Ile Ser Thr Val Lys Gln His Phe Ile Arg Ala Phe Asp Phe Thr Arg  
 35 40 45  
 Pro Leu Gly Ser Arg Ile Thr Asn Phe Ala Leu Gly Val Ile Lys Ala  
 50 55 60  
 Ile Pro Ile Leu Gly Cys Val Val Ile Gly Val Ser Trp Leu Val Ser  
 65 70 75 80  
 Thr Cys Ser Ala Arg Arg Phe Gly Lys Pro Ala Phe Thr Ser Asp Val  
 85 90 95  
 Ala Ser Ile Val Lys Ile Glu Lys Thr Arg Gly Tyr Asn Pro Leu Ala  
 100 105 110  
 Trp Val Glu Gln Tyr Leu Arg Gln Leu Arg Val Arg Leu Pro Glu Gly  
 115 120 125  
 Asp Leu Gly Lys Ile His Gly Lys Val Ser Arg Asp Tyr Val Cys Asp  
 130 135 140  
 Arg Thr Pro Gln Glu Asn Leu Asn Met Val Pro His Gln Tyr Leu Gly  
 145 150 155 160  
 Glu Leu Gly Arg Ala Phe Tyr Gly Ile Arg Asn Arg Val Thr Lys Ala  
 165 170 175  
 Tyr Gln Arg Val Thr Pro Leu Glu Val Pro Cys Leu Thr Leu Val Gly  
 180 185 190  
 Phe Asp Ile Leu Asp Pro Glu Asp Gln Val Asn Phe Val Arg Leu Ala  
 195 200 205  
 Asn Gly Ile Gln Thr Gln Tyr Pro Gln Thr Gln Ile Lys Leu Tyr Leu  
 210 215 220  
 Ile Ser Ile Gln Lys Ile Trp Asn Gln Cys Asp Gly Thr Ile Ser Gln  
 225 230 235 240  
 Glu Lys Glu Gln Gln Leu Arg Ser Leu Gly Leu Asp Ala Lys Ile Lys  
 245 250 255  
 Cys Val Ser Ala Pro Ala Leu Leu Leu Gln Lys Tyr Leu Gln Ser Glu  
 260 265 270  
 Asn Leu Pro Ser Cys Asp Leu Leu Ile Asn Tyr Tyr Gly Lys Gln Gln  
 275 280 285

Ser Val Arg Asp Val Asp Ser Ile Lys Ser Leu Leu Asn Leu Ser Ser  
 290 295 300  
 Glu His Ile Pro Ala Ile Ser Val Thr Tyr Arg Pro Asp Asp Pro Phe  
 305 310 315 320  
 Tyr Ser Tyr Tyr Phe Phe Pro Gly Ser Gln Gly Gly Thr Ala Pro Asp  
 325 330 335  
 Gln Arg Ile Pro Trp Ser Glu Gln Glu His Leu Gln Thr Tyr Thr Thr  
 340 345 350  
 Leu Ser Asn Pro Arg Cys Asp Arg Tyr Ala Val His Leu Gly Met Glu  
 355 360 365  
 Asp Phe Ala Ser Gly Val Phe Leu Asp Pro Leu Arg Val Ser Ala Pro  
 370 375 380  
 Leu Ser Gly Glu Tyr Ser Cys Pro Ser Tyr Leu Leu Asp Leu Lys Ser  
 385 390 395 400  
 Glu Glu Leu Arg Cys Phe Leu Leu Ser Ala Phe Ile Asp Pro Asn Asn  
 405 410 415  
 Ser Gly Gln Gly Asn Pro Arg Pro Met Ser Ile Asn Phe Gly Asn Ser  
 420 425 430  
 Pro Leu Gly Gln Arg Trp Ser Glu Phe Leu Ser Arg Val Leu His Asp  
 435 440 445  
 Glu Thr Glu Lys His Val Ala Val Val Cys Asn Asn Pro Gln Leu Ile  
 450 455 460  
 Lys Lys Ser Phe Pro Ser His Ser Leu Ser Leu Leu Glu Asn Glu Leu  
 465 470 475 480  
 Glu Glu Ser Gly Tyr Ser Tyr Leu Asn Ile Val Ser Val Ser Gln Glu  
 485 490 495  
 Arg Thr Cys Val Lys Glu Arg Arg Ile Leu Ser Ser Asp Pro Ser Gly  
 500 505 510  
 Arg Ser Phe Thr Val Ile Leu Thr Asp Leu Pro Glu Gly Ser Ser Asp  
 515 520 525  
 Ile Arg Asn Leu Gln Leu Ala Ser Asp Arg Ile Leu Val Ser  
 530 535 540

&lt;210&gt;497

&lt;211&gt;430

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;497

Leu Ser Ser Pro Tyr Glu Lys Thr Glu Gln Leu Leu Gly Thr Pro Asn  
 1 5 10 15  
 Cys Arg Thr Pro Arg Val Asn Ile Ser Thr Val Gly Ile Pro Ile Asp  
 20 25 30  
 Glu Thr Ser Asn Ala Phe Val Asp Ser Met Met Lys Gln Gly Val Gly  
 35 40 45  
 Gln Asp Ala Lys Glu Leu Tyr Thr Phe Leu Ser Arg Gly Asn Glu His  
 50 55 60  
 Tyr Gln Pro Cys Leu Trp Phe Ser Leu Glu Glu Leu Gly Phe Leu  
 65 70 75 80  
 Phe Asp Glu Lys Met Leu Cys Ala Pro Leu Ser Glu Asp His Tyr Cys  
 85 90 95  
 His Ser Tyr Leu Val Asp Leu Val Asp Gln His Leu Lys Asp Leu Ile  
 100 105 110  
 Leu Ser Met Phe Leu Asp Pro Gln Asn Ile Ser Ala Gly Glu Leu Leu  
 115 120 125  
 Lys Val Ser Ile Asn Val Gly Asp Ser Phe Ser Pro Leu Gln Gln Lys  
 130 135 140  
 Asp Phe Leu Ser Met Val Leu Arg Asp Glu Thr Gly Lys Asn Val Val  
 145 150 155 160  
 Val Val Phe Lys Gly Val Leu Ser Leu Pro Ala Thr Gln Val Cys Lys  
 165 170 175  
 Leu Val Glu Glu Leu Asn Ser Lys Asp Tyr Ser Tyr Leu Asn Ile Phe  
 180 185 190  
 Ser Cys His Gly Asp Ser Ser Pro Gln Leu Leu Phe Arg Lys Glu Leu  
 195 200 205  
 Glu Gly Thr Ser Gly Arg Tyr Phe Thr Val Ile Cys Ala Leu Tyr Leu

210 215 220  
 Gly Asp Thr Asp Met Arg Ser Leu Gln Leu Ala Ser Glu Arg Ile Met  
 225 230 235 240  
 Val Ser Arg Glu Phe Asp Leu Val Asp Ala Tyr Ala Ala Arg Cys Lys  
 245 250 255  
 Leu Leu Lys Ile Asp His Thr Asn Trp Arg Pro Gly Thr Phe Ser Arg  
 260 265 270  
 His Ala Asp Phe Ala Asp Ala Val Asp Val Ser Ala Gly Phe Asn Ser  
 275 280 285  
 Arg Glu Phe Lys Leu Ile Thr Gln Ala Asn Gln Gly Ile Leu Glu Ser  
 290 295 300  
 Gly Glu Leu Pro Leu Pro Ser Lys Thr Phe Trp Glu Gly Phe Leu Ala  
 305 310 315 320  
 Phe Cys Asp Arg Val Thr Val Thr Arg His Phe Ile Pro Met Leu Asp  
 325 330 335  
 Ala Ala Ile Lys Gln Ala Val Trp Thr His Lys His Pro Ser Leu Ile  
 340 345 350  
 Asp Lys Glu Cys Glu Ala Leu Asp Leu Lys Thr Gln Cys Leu Pro Ser  
 355 360 365  
 Ile Val Ser Tyr Leu Glu Tyr Val Thr Asn Ser His Glu Lys Thr Ser  
 370 375 380  
 Lys Gly Pro Phe Ile Gln Lys Glu Ile Ile Ala Asp Cys Ser Pro Leu  
 385 390 395 400  
 Lys Glu Ala Leu Phe Pro Gly Ser Asp Glu Asp Val Pro Ser Thr Ser  
 405 410 415  
 Glu Asp Pro Ser Asp Asp His Pro Ser Asp Leu Glu Asp Ser  
 420 425 430

&lt;210&gt;498

&lt;211&gt;186

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;498

Ser Leu Glu Thr Arg Gly Arg Phe Ala Glu Ile Cys Leu Gln Leu Leu  
 1 5 10 15  
 Phe Phe Asp Ile Gln Ser Leu Lys Phe Leu Gln Leu Phe Ser Glu Gly  
 20 25 30  
 Thr Ala Leu Asn Leu Phe Arg Ile Phe Ala Pro Leu Arg Asn Arg Val  
 35 40 45  
 Thr Thr Glu Tyr Ser Arg Ala Arg Gln Pro Asp Leu His Arg Ile Ala  
 50 55 60  
 Ile Val Tyr Ile Gly Val Leu Asp Ser Glu Ser Ser Lys Ile Leu Glu  
 65 70 75 80  
 Arg Leu Ile Ser Tyr Met Ser Cys Ile Tyr Ser Glu Ser Gln Met Tyr  
 85 90 95  
 Leu Arg Phe Phe Met Gly Lys Asn Val Asn Gln Ser Ala Val Leu Ser  
 100 105 110  
 Lys Leu His Val Glu Asn Leu His Ile Arg Cys Gly Phe Ser Glu  
 115 120 125  
 Asp Ala Val Pro Glu Ser Glu Pro Phe Asp Leu Ser Ile Tyr Val His  
 130 135 140  
 Thr Asp Arg Ser Cys Pro Leu Pro Thr Lys Lys Arg Ser Ser Ser Trp  
 145 150 155 160  
 Glu Leu Gln Thr Val Glu Leu Pro Glu Ser Ile Tyr Pro Gln Ser Glu  
 165 170 175  
 Phe Leu Leu Met Arg Pro Arg Met Leu Ser  
 180 185

&lt;210&gt;499

&lt;211&gt;136

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;499

Leu Leu Glu Asn Asn Arg Phe Phe Leu Phe Phe Lys Val Lys Tyr Phe  
 1 5 10 15  
 Leu Lys Asp Ser Phe Leu Met Ser Tyr Tyr Phe Ser Leu Trp Tyr Leu

20 25 30  
 Lys Val Gln Gln His Phe Gln Ala Ala Phe Asp Phe Thr Arg Ser Leu  
 35 40 45  
 Cys Ser Arg Ile Ser Asn Phe Ala Leu Gly Val Ile Ala Leu Leu Pro  
 50 55 60  
 Ile Ile Gly Gln Leu Tyr Val Gly Leu Asp Trp Leu Leu Ser Arg Ile  
 65 70 75 80  
 Lys Lys Pro Glu Phe Pro Ser Asp Val Asp Gln Ile Val Arg Val Glu  
 85 90 95  
 His Val Val Gly His Asp His Arg Ser Arg Val Glu Asp Ile Leu Lys  
 100 105 110  
 Arg Gln Arg Leu Ser Leu Glu Pro Arg Asp Glu Gly Lys Val Arg Gly  
 115 120 125  
 Asp Leu Pro Ser Ala Pro Phe Phe  
 130 135  
 <210>500  
 <211>940  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>500  
 Thr Ser Met Arg Phe Phe Cys Phe Gly Met Leu Leu Pro Phe Thr Phe  
 1 5 10 15  
 Val Leu Ala Asn Glu Gly Leu Gln Leu Pro Leu Glu Thr Tyr Ile Thr  
 20 25 30  
 Leu Ser Pro Glu Tyr Gln Ala Ala Pro Gln Val Gly Phe Thr His Asn  
 35 40 45  
 Gln Asn Gln Asp Leu Ala Ile Val Gly Asn His Asn Asp Phe Ile Leu  
 50 55 60  
 Asp Tyr Lys Tyr Tyr Arg Ser Asn Gly Gly Ala Leu Thr Cys Lys Asn  
 65 70 75 80  
 Leu Leu Ile Ser Glu Asn Ile Gly Asn Val Phe Phe Glu Lys Asn Val  
 85 90 95  
 Cys Pro Asn Ser Gly Gly Ala Ile Tyr Ala Ala Gln Asn Cys Thr Ile  
 100 105 110  
 Ser Lys Asn Gln Asn Tyr Ala Phe Thr Thr Asn Leu Val Ser Asp Asn  
 115 120 125  
 Pro Thr Ala Thr Ala Gly Ser Leu Leu Gly Gly Ala Leu Phe Ala Ile  
 130 135 140  
 Asn Cys Ser Ile Thr Asn Asn Leu Gly Gln Gly Thr Phe Val Asp Asn  
 145 150 155 160  
 Leu Ala Leu Asn Lys Gly Gly Ala Leu Tyr Thr Glu Thr Asn Leu Ser  
 165 170 175  
 Ile Lys Asp Asn Lys Gly Pro Ile Ile Ile Lys Gln Asn Arg Ala Leu  
 180 185 190  
 Asn Ser Asp Ser Leu Gly Gly Gly Ile Tyr Ser Gly Asn Ser Leu Asn  
 195 200 205  
 Ile Glu Gly Asn Ser Gly Ala Ile Gln Ile Thr Ser Asn Ser Ser Gly  
 210 215 220  
 Ser Gly Gly Gly Ile Phe Ser Thr Gln Thr Leu Thr Ile Ser Ser Asn  
 225 230 235 240  
 Lys Lys Leu Ile Glu Ile Ser Glu Asn Ser Ala Phe Ala Asn Asn Tyr  
 245 250 255  
 Gly Ser Asn Phe Asn Pro Gly Gly Gly Gly Leu Thr Thr Thr Phe Cys  
 260 265 270  
 Thr Ile Leu Asn Asn Arg Glu Gly Val Leu Phe Asn Asn Asn Gln Ser  
 275 280 285  
 Gln Ser Asn Gly Gly Ala Ile His Ala Lys Ser Ile Ile Ile Lys Glu  
 290 295 300  
 Asn Gly Pro Val Tyr Phe Leu Asn Asn Thr Ala Thr Arg Gly Gly Ala  
 305 310 315 320  
 Leu Leu Asn Leu Ser Ala Gly Ser Gly Asn Gly Ser Phe Ile Leu Ser  
 325 330 335  
 Ala Asp Asn Gly Asp Ile Ile Phe Asn Asn Asn Thr Ala Ser Lys His  
 340 345 350

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Leu | Asn | Pro | Pro | Tyr | Arg | Asn | Ala | Ile | His | Ser | Thr | Pro | Asn | Met | 355 | 360 | 365 |
| Asn | Leu | Gln | Ile | Gly | Ala | Arg | Pro | Gly | Tyr | Arg | Val | Leu | Phe | Tyr | Asp | 370 | 375 | 380 |
| Pro | Ile | Glu | His | Glu | Leu | Pro | Ser | Ser | Phe | Pro | Ile | Leu | Phe | Asn | Phe | 385 | 390 | 395 |
| Glu | Thr | Gly | His | Thr | Gly | Thr | Val | Leu | Phe | Ser | Gly | Glu | His | Val | His | 405 | 410 | 415 |
| Gln | Asn | Phe | Thr | Asp | Glu | Met | Asn | Phe | Phe | Ser | Tyr | Leu | Arg | Asn | Thr | 420 | 425 | 430 |
| Ser | Glu | Leu | Arg | Gln | Gly | Val | Leu | Ala | Val | Glu | Asp | Gly | Ala | Gly | Leu | 435 | 440 | 445 |
| Ala | Cys | Tyr | Lys | Phe | Phe | Gln | Arg | Gly | Gly | Thr | Leu | Leu | Leu | Gly | Gln | 450 | 455 | 460 |
| Gly | Ala | Val | Ile | Thr | Thr | Ala | Gly | Thr | Ile | Pro | Thr | Pro | Ser | Ser | Thr | 465 | 470 | 475 |
| Pro | Thr | Thr | Val | Gly | Ser | Thr | Ile | Thr | Leu | Asn | His | Ile | Ala | Ile | Asp | 485 | 490 | 495 |
| Leu | Pro | Ser | Ile | Leu | Ser | Phe | Gln | Ala | Gln | Ala | Pro | Lys | Ile | Trp | Ile | 500 | 505 | 510 |
| Tyr | Pro | Thr | Lys | Thr | Gly | Ser | Thr | Tyr | Thr | Glu | Asp | Ser | Asn | Pro | Thr | 515 | 520 | 525 |
| Ile | Thr | Ile | Ser | Gly | Thr | Leu | Thr | Leu | Arg | Asn | Ser | Asn | Asn | Glu | Asp | 530 | 535 | 540 |
| Pro | Tyr | Asp | Ser | Leu | Asp | Leu | Ser | His | Ser | Leu | Glu | Lys | Val | Pro | Leu | 545 | 550 | 555 |
| Leu | Tyr | Ile | Val | Asp | Val | Ala | Ala | Gln | Lys | Ile | Asn | Ser | Ser | Gln | Leu | 565 | 570 | 575 |
| Asp | Leu | Ser | Thr | Leu | Asn | Ser | Gly | Glu | His | Tyr | Gly | Tyr | Gln | Gly | Ile | 580 | 585 | 590 |
| Trp | Ser | Thr | Tyr | Trp | Val | Glu | Thr | Thr | Ile | Thr | Asn | Pro | Thr | Ser |     | 595 | 600 | 605 |
| Leu | Leu | Gly | Ala | Asn | Thr | Lys | His | Lys | Leu | Leu | Tyr | Ala | Asn | Trp | Ser | 610 | 615 | 620 |
| Pro | Leu | Gly | Tyr | Arg | Pro | His | Pro | Glu | Arg | Arg | Gly | Glu | Phe | Ile | Thr | 625 | 630 | 635 |
| Asn | Ala | Leu | Trp | Gln | Ser | Ala | Tyr | Thr | Ala | Leu | Ala | Gly | Leu | His | Ser | 645 | 650 | 655 |
| Leu | Ser | Ser | Trp | Asp | Glu | Glu | Lys | Gly | His | Ala | Ala | Ser | Leu | Gln | Gly | 660 | 665 | 670 |
| Ile | Gly | Leu | Leu | Val | His | Gln | Lys | Asp | Lys | Asn | Gly | Phe | Lys | Gly | Phe | 675 | 680 | 685 |
| Arg | Ser | His | Met | Thr | Gly | Tyr | Ser | Ala | Thr | Thr | Glu | Ala | Thr | Ser | Ser | 690 | 695 | 700 |
| Gln | Ser | Pro | Asn | Phe | Ser | Leu | Gly | Phe | Ala | Gln | Phe | Phe | Ser | Lys | Ala | 705 | 710 | 715 |
| Lys | Glu | His | Glu | Ser | Gln | Asn | Ser | Thr | Ser | Ser | His | His | Tyr | Phe | Ser | 725 | 730 | 735 |
| Gly | Met | Cys | Ile | Glu | Asn | Thr | Leu | Phe | Lys | Glu | Trp | Ile | Arg | Leu | Ser | 740 | 745 | 750 |
| Val | Ser | Leu | Ala | Tyr | Met | Phe | Thr | Ser | Glu | His | Thr | His | Thr | Met | Tyr | 755 | 760 | 765 |
| Gln | Gly | Leu | Leu | Glu | Gly | Asn | Ser | Gln | Gly | Ser | Phe | His | Asn | His | Thr | 770 | 775 | 780 |
| Leu | Ala | Gly | Ala | Leu | Ser | Cys | Val | Phe | Leu | Pro | Gln | Pro | His | Gly | Glu | 785 | 790 | 795 |
| Ser | Leu | Gln | Ile | Tyr | Pro | Phe | Ile | Thr | Ala | Leu | Ala | Ile | Arg | Gly | Asn | 805 | 810 | 815 |
| Leu | Ala | Ala | Phe | Gln | Glu | Ser | Gly | Asp | His | Ala | Arg | Glu | Phe | Ser | Leu | 820 | 825 | 830 |
| His | Arg | Pro | Leu | Thr | Asp | Val | Ser | Leu | Pro | Val | Gly | Ile | Arg | Ala | Ser | 835 | 840 | 845 |
| Trp | Lys | Asn | His | His | Arg | Val | Pro | Leu | Val | Trp | Leu | Thr | Glu | Ile | Ser | 850 | 855 | 860 |

Tyr Arg Ser Thr Leu Tyr Arg Gln Asp Pro Glu Leu His Ser Lys Leu  
 865 870 875 880  
 Leu Ile Ser Gln Gly Thr Trp Thr Thr Gln Ala Thr Pro Val Thr Tyr  
 885 890 895  
 Asn Ala Leu Gly Ile Lys Val Lys Asn Thr Met Gln Val Phe Pro Lys  
 900 905 910  
 Val Thr Leu Ser Leu Asp Tyr Ser Ala Asp Ile Ser Ser Ser Thr Leu  
 915 920 925  
 Ser His Tyr Leu Asn Val Ala Ser Arg Met Arg Phe  
 930 935 940  
 <210>501  
 <211>969  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>501  
 Asn Glu Ile Leu Thr Ile Ser Asp Gln Asn Arg Lys Ile Lys Glu Pro  
 1 5 10 15  
 Leu Val Ser Lys Thr Pro Pro Lys Phe Leu Phe Tyr Leu Gly Asn Phe  
 20 25 30  
 Thr Ala Cys Met Phe Gly Met Thr Pro Ala Val Tyr Ser Leu Gln Thr  
 35 40 45  
 Asp Ser Leu Glu Lys Phe Ala Leu Glu Arg Asp Glu Glu Phe Arg Thr  
 50 55 60  
 Ser Phe Pro Leu Leu Asp Ser Leu Ser Thr Leu Thr Gly Phe Ser Pro  
 65 70 75 80  
 Ile Thr Thr Phe Val Gly Asn Arg His Asn Ser Ser Gln Asp Ile Val  
 85 90 95  
 Leu Ser Asn Tyr Lys Ser Ile Asp Asn Ile Leu Leu Leu Trp Thr Ser  
 100 105 110  
 Ala Gly Gly Ala Val Ser Cys Asn Asn Phe Leu Leu Ser Asn Val Glu  
 115 120 125  
 Asp His Ala Phe Phe Ser Lys Asn Leu Ala Ile Gly Thr Gly Gly Ala  
 130 135 140  
 Ile Ala Cys Gln Gly Ala Cys Thr Ile Thr Lys Asn Arg Gly Pro Leu  
 145 150 155 160  
 Ile Phe Phe Ser Asn Arg Gly Leu Asn Asn Ala Ser Thr Gly Gly Glu  
 165 170 175  
 Thr Arg Gly Gly Ala Ile Ala Cys Asn Gly Asp Phe Thr Ile Ser Gln  
 180 185 190  
 Asn Gln Gly Thr Phe Tyr Phe Val Asn Asn Ser Val Asn Asn Trp Gly  
 195 200 205  
 Gly Ala Leu Ser Thr Asn Gly His Cys Arg Ile Gln Ser Asn Arg Ala  
 210 215 220  
 Pro Leu Leu Phe Phe Asn Asn Thr Ala Pro Ser Gly Gly Gly Ala Leu  
 225 230 235 240  
 Arg Ser Glu Asn Thr Thr Ile Ser Asp Asn Thr Arg Pro Ile Tyr Phe  
 245 250 255  
 Lys Asn Asn Cys Gly Asn Asn Gly Gly Ala Ile Gln Thr Ser Val Thr  
 260 265 270  
 Val Ala Ile Lys Asn Asn Ser Gly Ser Val Ile Phe Asn Asn Asn Thr  
 275 280 285  
 Ala Leu Ser Gly Ser Ile Asn Ser Gly Asn Gly Ser Gly Gly Ala Ile  
 290 295 300  
 Tyr Thr Thr Asn Leu Ser Ile Asp Asp Asn Pro Gly Thr Ile Leu Phe  
 305 310 315 320  
 Asn Asn Asn Tyr Cys Ile Arg Asp Gly Gly Ala Ile Cys Thr Gln Phe  
 325 330 335  
 Leu Thr Ile Lys Asn Ser Gly His Val Tyr Phe Thr Asn Asn Gln Gly  
 340 345 350  
 Asn Trp Gly Gly Ala Leu Met Leu Leu Gln Asp Ser Thr Cys Leu Leu  
 355 360 365  
 Phe Ala Glu Gln Gly Asn Ile Ala Phe Gln Asn Asn Glu Val Phe Leu  
 370 375 380  
 Thr Thr Phe Gly Arg Tyr Asn Ala Ile His Cys Thr Pro Asn Ser Asn

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     | 400 |     |
| Leu | Gln | Leu | Gly | Ala | Asn | Lys | Gly | Tyr | Thr | Thr | Ala | Phe | Phe | Asp | Pro |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Ile | Glu | His | Gln | His | Pro | Thr | Thr | Asn | Pro | Leu | Ile | Phe | Asn | Pro | Asn |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Ala | Asn | His | Gln | Gly | Thr | Ile | Leu | Phe | Ser | Ser | Ala | Tyr | Ile | Pro | Glu |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Ala | Ser | Asp | Tyr | Glu | Asn | Asn | Phe | Ile | Ser | Ser | Ser | Lys | Asn | Thr | Ser |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Glu | Leu | Arg | Asn | Gly | Val | Leu | Ser | Ile | Glu | Asp | Arg | Ala | Gly | Trp | Gln |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Phe | Tyr | Lys | Phe | Thr | Gln | Lys | Gly | Gly | Ile | Leu | Lys | Leu | Gly | His | Ala |
|     |     |     | 485 |     |     |     |     |     | 490 |     |     |     |     | 495 |     |
| Ala | Ser | Ile | Ala | Thr | Thr | Ala | Asn | Ser | Glu | Thr | Pro | Ser | Thr | Ser | Val |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |
| Gly | Ser | Gln | Val | Ile | Ile | Asn | Asn | Leu | Ala | Ile | Asn | Leu | Pro | Ser | Ile |
|     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |
| Leu | Ala | Lys | Gly | Lys | Ala | Pro | Thr | Leu | Trp | Ile | Arg | Pro | Leu | Gln | Ser |
|     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |
| Ser | Ala | Pro | Phe | Thr | Glu | Asp | Asn | Asn | Pro | Thr | Ile | Thr | Leu | Ser | Gly |
| 545 |     |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |
| Pro | Leu | Thr | Leu | Leu | Asn | Glu | Glu | Asn | Arg | Asp | Pro | Tyr | Asp | Ser | Ile |
|     |     |     | 565 |     |     |     |     | 570 |     |     |     |     |     | 575 |     |
| Asp | Leu | Ser | Glu | Pro | Leu | Gln | Asn | Ile | His | Leu | Leu | Ser | Leu | Ser | Asp |
|     |     |     | 580 |     |     |     |     | 585 |     |     |     |     | 590 |     |     |
| Val | Thr | Ala | Arg | His | Ile | Asn | Thr | Asp | Asn | Phe | His | Pro | Glu | Ser | Leu |
|     |     | 595 |     |     |     |     | 600 |     |     |     |     | 605 |     |     |     |
| Asn | Ala | Thr | Glu | His | Tyr | Gly | Tyr | Gln | Gly | Ile | Trp | Ser | Pro | Tyr | Trp |
|     | 610 |     |     |     |     | 615 |     |     |     |     | 620 |     |     |     |     |
| Val | Glu | Thr | Ile | Thr | Thr | Asn | Asn | Ala | Ser | Ile | Glu | Thr | Ala | Asn |     |
| 625 |     |     |     |     | 630 |     |     |     | 635 |     |     |     |     | 640 |     |
| Thr | Leu | Tyr | Arg | Ala | Leu | Tyr | Ala | Asn | Trp | Thr | Pro | Leu | Gly | Tyr | Lys |
|     |     |     | 645 |     |     |     |     | 650 |     |     |     |     | 655 |     |     |
| Val | Asn | Pro | Glu | Tyr | Gln | Gly | Asp | Leu | Ala | Thr | Thr | Pro | Leu | Trp | Gln |
|     |     |     | 660 |     |     |     |     | 665 |     |     |     |     | 670 |     |     |
| Ser | Phe | His | Thr | Met | Phe | Ser | Leu | Leu | Arg | Ser | Tyr | Asn | Arg | Thr | Gly |
|     | 675 |     |     |     |     |     | 680 |     |     |     |     | 685 |     |     |     |
| Asp | Ser | Asp | Ile | Glu | Arg | Pro | Phe | Leu | Glu | Ile | Gln | Gly | Ile | Ala | Asp |
|     | 690 |     |     |     |     | 695 |     |     |     |     | 700 |     |     |     |     |
| Gly | Leu | Phe | Val | His | Gln | Asn | Ser | Ile | Pro | Gly | Ala | Pro | Gly | Phe | Arg |
| 705 |     |     |     |     | 710 |     |     |     |     | 715 |     |     |     |     | 720 |
| Ile | Gln | Ser | Thr | Gly | Tyr | Ser | Leu | Gln | Ala | Ser | Ser | Glu | Thr | Ser | Leu |
|     |     |     | 725 |     |     |     |     |     | 730 |     |     |     |     | 735 |     |
| His | Gln | Lys | Ile | Ser | Leu | Gly | Phe | Ala | Gln | Phe | Phe | Thr | Arg | Thr | Lys |
|     |     |     | 740 |     |     |     |     | 745 |     |     |     |     | 750 |     |     |
| Glu | Ile | Gly | Ser | Ser | Asn | Asn | Val | Ser | Ala | His | Asn | Thr | Val | Ser | Ser |
|     | 755 |     |     |     |     |     | 760 |     |     |     |     | 765 |     |     |     |
| Leu | Tyr | Val | Glu | Leu | Pro | Trp | Phe | Gln | Glu | Ala | Phe | Ala | Thr | Ser | Thr |
|     | 770 |     |     |     |     | 775 |     |     |     |     | 780 |     |     |     |     |
| Val | Leu | Ala | Tyr | Gly | Tyr | Gly | Asp | His | His | Leu | His | Ser | Leu | His | Pro |
| 785 |     |     |     |     | 790 |     |     |     |     | 795 |     |     |     |     | 800 |
| Ser | His | Gln | Glu | Gln | Ala | Glu | Gly | Thr | Cys | Tyr | Ser | His | Thr | Leu | Ala |
|     |     |     | 805 |     |     |     |     |     | 810 |     |     |     |     | 815 |     |
| Ala | Ala | Ile | Gly | Cys | Ser | Phe | Pro | Trp | Gln | Gln | Lys | Ser | Tyr | Leu | His |
|     |     |     | 820 |     |     |     |     | 825 |     |     |     |     | 830 |     |     |
| Leu | Ser | Pro | Phe | Val | Gln | Ala | Ile | Ala | Ile | Arg | Ser | His | Gln | Thr | Ala |
|     | 835 |     |     |     |     |     | 840 |     |     |     |     | 845 |     |     |     |
| Phe | Glu | Glu | Ile | Gly | Asp | Asn | Pro | Arg | Lys | Phe | Val | Ser | Gln | Lys | Pro |
|     | 850 |     |     |     |     | 855 |     |     |     |     | 860 |     |     |     |     |
| Phe | Tyr | Asn | Leu | Thr | Leu | Pro | Leu | Gly | Ile | Gln | Gly | Lys | Trp | Gln | Ser |
| 865 |     |     |     |     | 870 |     |     |     |     | 875 |     |     |     |     | 880 |
| Lys | Phe | His | Val | Pro | Thr | Glu | Trp | Thr | Leu | Glu | Leu | Ser | Tyr | Glu | Pro |
|     |     |     | 885 |     |     |     |     |     | 890 |     |     |     |     | 895 |     |
| Val | Leu | Tyr | Gln | Gln | Asn | Pro | Gln | Ile | Gly | Val | Thr | Leu | Leu | Ala | Ser |



900 905 910  
 Gly Gly Ser Trp Asp Ile Leu Gly His Asn Tyr Val Arg Asn Ala Leu  
 915 920 925  
 Gly Tyr Lys Val His Asn Gln Thr Ala Leu Phe Arg Ser Leu Asp Leu  
 930 935 940  
 Phe Leu Asp Tyr Gln Gly Ser Val Ser Ser Ser Thr Ser Thr His His  
 945 950 955 960  
 Leu Gln Ala Gly Ser Thr Leu Lys Phe  
 965

&lt;210&gt;502

&lt;211&gt;100

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;502

Arg Cys Pro Val Ala Leu Asp Ala Ala Val Ser Ile Gly Gly Glu Gly  
 1 5 10 15  
 Ser Ser Pro Val Val Asp Gly Ile Val Asp Lys Val Glu Ser Pro Leu  
 20 25 30  
 Ile Leu Arg Asn Arg Glu Val Ser Ile Thr Gly Asn Arg Thr Pro Thr  
 35 40 45  
 Ser Phe Ser Ser Cys Thr Arg Ile Val Lys Thr Ser Ile Ala Glu Lys  
 50 55 60  
 Asn Lys Gly Ser Ser Ile Leu Arg Asp Cys Ala Gly Ser Leu Ala Ser  
 65 70 75 80  
 Asn Arg Ala Ser Ser Pro Asn Arg Glu Ile Phe Thr Glu Glu Gly Met  
 85 90 95  
 Val Phe Asn Ile  
 100

&lt;210&gt;503

&lt;211&gt;275

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;503

Ile Tyr Lys Leu Leu Asp Asn Lys Leu Met Ile Phe Tyr Asp Lys Leu  
 1 5 10 15  
 Tyr Phe His Ile Lys Val Trp Met Phe Met Arg Pro Ile Cys Leu Ser  
 20 25 30  
 Ile Leu Ser Thr Ala Leu Cys Cys Ser Leu Ser Gly Asn Glu Val Pro  
 35 40 45  
 Asn Leu Ala Ser Cys Gln Met Ser Arg Lys Asp Ile Ser Ala Phe His  
 50 55 60  
 Thr Ser Pro Ser Phe Arg Leu Asn Val Thr Pro Glu Pro Leu Val Ser  
 65 70 75 80  
 Ser Phe Arg Pro Ser Asn Leu Leu Asn Gly Phe Gly His Asp Ile Thr  
 85 90 95  
 Gln Asp Ile Thr Ile Thr Gly Asn Ser Ile Asn Ser Val Ile Asp Tyr  
 100 105 110  
 Asn Tyr His Tyr Glu Asp Gly Gly Ile Leu Ala Cys Lys Asn Leu Phe  
 115 120 125  
 Ile Ser Glu Asn Lys Gly Asn Leu Ser Phe Glu Arg Asn Ser Ser His  
 130 135 140  
 Ser Ser Gly Gly Ala Leu Tyr Ser Val Arg Glu Cys Trp Ile Ser Lys  
 145 150 155 160  
 Asn Gln Asn Tyr Ser Phe Ile Ser Asn Ala Ala Ser Leu Ala Thr Thr  
 165 170 175  
 Thr Thr Ser Gly Phe Gly Gly Ala Ile His Ala Leu Asp Ser Tyr Ile  
 180 185 190  
 Thr Asn Asn Leu Gly Glu Gly Gln Phe Leu Asp Asn Val Ser Lys Asn  
 195 200 205  
 Arg Gly Gly Ala Ile Tyr Val Gly Val Ser Leu Ser Ile Thr Asp Asn  
 210 215 220  
 Leu Gly Pro Ile Val Ile Lys Lys Asn Gln Thr Leu Glu Asp Ser Ser  
 225 230 235 240  
 Phe Gly Gly Gly Ile Phe Cys Arg Ala Val Asn Ile Glu Arg Asn Tyr

245 250 255  
 Gln Asn Ile Gln Ile Asn Asp Asn Ala Ser Gly Gln Gly Val Val Tyr  
 260 265 270  
 Phe Leu Pro  
 275  
 <210>504  
 <211>354  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>504  
 Cys Phe Arg Thr Arg Gly Gly Ile Phe Ser Ala Leu Gly Val Ile Ile  
 1 5 10 15  
 Ser Ser Asn Lys Glu Ile Ile Glu Ile Ser Asn His Ser Ala Ser Ser  
 20 25 30  
 Ile Asn Thr Ala Ser Gly Lys Leu Tyr Pro Gly Gly Gly Ile Met  
 35 40 45  
 Cys Thr Ser Leu Val Ile Glu Asn Asn Pro Lys Gly Leu Ile Phe Asn  
 50 55 60  
 Asn Lys Thr Ala Ala Leu Ser Gly Gly Ala Ile His Thr Arg Ser Phe  
 65 70 75 80  
 Ile Phe Gln Asn Asn Gly Pro Thr Ala Phe Ile Asn Asn Ser Ala Thr  
 85 90 95  
 Ser Gly Gly Ala Leu Ile Asn Leu Ser Gly Ile Gly Ser Thr Pro Gln  
 100 105 110  
 Asn Phe Phe Leu Ser Ala Asp Tyr Gly Asp Ile Leu Phe Asn Asn Asn  
 115 120 125  
 Thr Ile Thr Ser Ser Ser Pro Gln Pro Gly Tyr Arg Asn Ala Leu Tyr  
 130 135 140  
 Ala Ala Pro Gly Ile Asn Leu Lys Leu Gly Ala Arg Gln Gly Tyr Lys  
 145 150 155 160  
 Ile Leu Phe Tyr Asp Pro Ile Asp His Asp Gln Thr Thr Thr Asp Pro  
 165 170 175  
 Ile Val Phe Asn Tyr Glu Pro His His Leu Gly Thr Val Leu Phe Ser  
 180 185 190  
 Gly Ile Asn Val Asp Ser Asn Ala Thr Asn Pro Leu Asn Phe Leu Ser  
 195 200 205  
 Lys Phe Ser Asn Ser Ser Arg Leu Glu Arg Gly Val Leu Ala Ile Glu  
 210 215 220  
 Asp Arg Ala Ala Ile Ser Cys Lys Thr Leu Ser Gln Thr Gly Gly Ile  
 225 230 235 240  
 Leu Arg Leu Gly Asn Ala Ala Leu Ile Arg Thr Lys Gly Pro Gly Ser  
 245 250 255  
 Ser Ile Asn Phe Asn Ala Ile Ala Ile Asn Leu Pro Ser Ile Leu Gln  
 260 265 270  
 Ser Glu Ala Ser Ala Pro Lys Phe Trp Ile Tyr Pro Thr Leu Thr Gly  
 275 280 285  
 Ser Thr Tyr Ser Glu Asp Thr Ser Ser Thr Ile Thr Leu Ser Gly Pro  
 290 295 300  
 Leu Thr Phe Leu Asn Asp Glu Asn Glu Asn Pro Tyr Asp Ser Leu Asp  
 305 310 315 320  
 Leu Ser Glu Pro Arg Lys Asp Ile Pro Pro Pro Leu Pro Pro Arg Cys  
 325 330 335  
 Asp Cys Lys Lys Asn Arg Tyr Phe Glu Ser His Cys Arg Ser His Glu  
 340 345 350  
 Leu Arg

<210>505  
 <211>392  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>505

Ile Ser Leu Asn Leu Glu Arg Ile Ser Pro Leu Leu Tyr Leu Leu Asp  
 1 5 10 15  
 Val Thr Ala Lys Lys Ile Asp Thr Ser Asn Leu Ile Val Glu Ala Met

```

      20      25      30
Asn Leu Asp Glu His Tyr Gly Tyr Gln Gly Ile Trp Ser Pro Tyr Trp
      35      40      45
Met Glu Thr Thr Thr Thr Thr Ser Ser Thr Val Pro Glu Gln Thr Asn
      50      55      60
Thr Asn His Arg Gln Leu Tyr Val Asp Trp Thr Pro Val Gly Tyr Arg
      65      70      75      80
Pro Asn Pro Glu Arg His Gly Glu Phe Ile Ala Asn Thr Leu Trp Gln
      85      90      95
Ser Ala Tyr Asn Ala Leu Leu Gly Ile Arg Ile Leu Pro Pro Gln Asn
      100      105      110
Leu Lys Glu His Asp Leu Glu Ala Ser Leu Gln Gly Leu Gly Leu Leu
      115      120      125
Ile Asn Gln His Asn Arg Glu Gly Arg Lys Gly Phe Arg Asn His Thr
      130      135      140
Thr Gly Tyr Ala Ala Thr Thr Ser Ala Lys Thr Ala Ala Arg His Ser
      145      150      155      160
Phe Ser Leu Gly Phe Ala Gln Met Phe Ser Lys Thr Arg Glu Arg Gln
      165      170      175
Ser Pro Ser Thr Thr Ser Ser His Asn Tyr Phe Ala Gly Leu Arg Phe
      180      185      190
Asp Ser Leu Leu Phe Arg Asp Phe Ile Ser Thr Gly Leu Ser Leu Gly
      195      200      205
Tyr Ser Tyr Gly Asp His His Met Leu Cys His Tyr Thr Glu Ile Leu
      210      215      220
Lys Gly Ser Ser Lys Ala Phe Phe Asn Asn His Thr Leu Val Ala Ser
      225      230      235      240
Leu Asp Cys Thr Phe Leu Pro Ala Arg Ile Thr Arg Thr Leu Glu Leu
      245      250      255
Gln Pro Phe Ile Ser Ala Ile Ala Leu Arg Cys Ser Gln Ala Ser Phe
      260      265      270
Gln Glu Thr Gly Asp His Ile Arg Lys Phe His Pro Lys His Pro Leu
      275      280      285
Thr Asp Leu Ser Ser Pro Ile Gly Phe Arg Ser Glu Trp Lys Thr Ser
      290      295      300
His His Ile Pro Met Leu Trp Thr Thr Glu Ile Ser Tyr Val Pro Thr
      305      310      315      320
Leu Tyr Arg Lys Asn Pro Glu Met Phe Thr Thr Leu Leu Ile Ser Asn
      325      330      335
Gly Thr Trp Thr Thr Gln Ala Thr Pro Val Ser Tyr Asn Ser Val Ala
      340      345      350
Ala Lys Ile Lys Asn Thr Ser Gln Leu Phe Ser Arg Val Thr Leu Ser
      355      360      365
Leu Asp Tyr Ser Ala Gln Val Ser Ser Ser Thr Val Gly Gln Tyr Leu
      370      375      380
Lys Ala Glu Ser His Cys Thr Phe
      385      390

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&lt;210&gt;506

&lt;211&gt;822

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;506

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Thr Val Gln Asn Asn Arg Ser Leu Ser Lys Ser Ser Phe Phe Val Gly
  1      5      10      15
Ala Leu Ile Leu Gly Lys Thr Thr Ile Leu Leu Asn Ala Thr Pro Leu
      20      25      30
Ser Asp Tyr Phe Asp Asn Gln Ala Asn Gln Leu Thr Thr Leu Phe Pro
      35      40      45
Leu Ile Asp Thr Leu Thr Asn Met Thr Pro Tyr Ser His Arg Ala Thr
      50      55      60
Leu Phe Gly Val Arg Asp Asp Thr Asn Gln Asp Ile Val Leu Asp His
      65      70      75      80
Gln Asn Ser Ile Glu Ser Trp Phe Glu Asn Phe Ser Gln Asp Gly Gly
      85      90      95

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|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Leu | Ser | Cys | Lys | Ser | Leu | Ala | Ile | Thr | Asn | Thr | Lys | Asn | Gln | Ile |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Leu | Phe | Leu | Asn | Ser | Phe | Ala | Ile | Lys | Arg | Ala | Gly | Ala | Met | Tyr | Val |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Asn | Gly | Asn | Phe | Asp | Leu | Ser | Glu | Asn | His | Gly | Ser | Ile | Ile | Phe | Ser |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Gly | Asn | Leu | Ser | Phe | Pro | Asn | Ala | Ser | Asn | Phe | Ala | Asp | Thr | Cys | Thr |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Gly | Gly | Ala | Val | Leu | Cys | Ser | Lys | Asn | Val | Thr | Ile | Ser | Lys | Asn | Gln |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Arg | Thr | Ala | Tyr | Phe | Ile | Asn | Asn | Lys | Ala | Lys | Ser | Ser | Gly | Gly | Ala |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Ile | Gln | Ala | Ala | Ile | Ile | Asn | Ile | Lys | Asp | Asn | Thr | Gly | Pro | Cys | Leu |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Phe | Phe | Asn | Asn | Ala | Ala | Gly | Xaa | Thr | Ala | Gly | Gly | Ala | Leu | Phe | Ala |
| 210 |     |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Asn | Ala | Cys | Arg | Ile | Glu | Asn | Asn | Ser | Gln | Pro | Ile | Tyr | Phe | Leu | Asn |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Asn | Gln | Ser | Gly | Leu | Gly | Gly | Ala | Ile | Arg | Val | His | Gln | Glu | Cys | Ile |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     | 255 |     |     |
| Leu | Thr | Lys | Asn | Thr | Gly | Ser | Val | Ile | Phe | Asn | Asn | Asn | Phe | Ala | Met |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Glu | Ala | Asp | Ile | Ser | Ala | Asn | His | Ser | Ser | Gly | Gly | Ala | Ile | Tyr | Cys |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Ile | Ser | Cys | Ser | Ile | Lys | Asp | Asn | Pro | Gly | Ile | Ala | Ala | Phe | Asp | Asn |
|     |     | 290 |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Asn | Thr | Ala | Ala | Arg | Asp | Gly | Gly | Ala | Ile | Cys | Thr | Gln | Ser | Leu | Thr |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Ile | Gln | Asp | Ser | Gly | Pro | Val | Tyr | Phe | Thr | Asn | Asn | Gln | Gly | Thr | Trp |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Gly | Gly | Ala | Ile | Met | Leu | Arg | Gln | Asp | Gly | Ala | Cys | Thr | Leu | Phe | Ala |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Asp | Gln | Gly | Asp | Ile | Ile | Phe | Tyr | Asn | Asn | Arg | His | Phe | Lys | Asp | Thr |
|     |     | 355 |     |     |     | 360 |     |     |     |     |     | 365 |     |     |     |
| Phe | Ser | Asn | His | Val | Ser | Val | Asn | Cys | Thr | Arg | Asn | Val | Ser | Leu | Thr |
|     |     | 370 |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Val | Gly | Ala | Ser | Gln | Gly | His | Ser | Ala | Thr | Phe | Tyr | Asp | Pro | Ile | Leu |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Gln | Arg | Tyr | Thr | Ile | Gln | Asn | Ser | Ile | Gln | Lys | Phe | Asn | Pro | Asn | Pro |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Glu | His | Leu | Gly | Thr | Ile | Leu | Phe | Ser | Ser | Ala | Tyr | Ile | Pro | Asp | Thr |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Ser | Thr | Ser | Arg | Asp | Asp | Phe | Ile | Ser | His | Phe | Arg | Asn | His | Ile | Gly |
|     |     | 435 |     |     |     | 440 |     |     |     |     |     | 445 |     |     |     |
| Leu | Tyr | Asn | Gly | Thr | Leu | Ala | Leu | Glu | Asp | Arg | Ala | Glu | Trp | Lys | Val |
|     |     | 450 |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Tyr | Lys | Phe | Asp | Gln | Phe | Gly | Gly | Thr | Leu | Arg | Leu | Gly | Ser | Arg | Ala |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Val | Phe | Ser | Thr | Thr | Asp | Glu | Glu | Gln | Ser | Ser | Ser | Ser | Val | Gly | Ser |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |     |
| Val | Ile | Asn | Ile | Asn | Asn | Leu | Ala | Ile | Asn | Leu | Pro | Ser | Ile | Leu | Gly |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |
| Asn | Arg | Val | Ala | Pro | Lys | Leu | Trp | Ile | Arg | Pro | Thr | Gly | Ser | Ser | Ala |
|     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |
| Pro | Tyr | Ser | Glu | Asp | Asn | Asn | Pro | Ile | Ile | Asn | Leu | Ser | Gly | Pro | Leu |
|     |     | 530 |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |
| Ser | Leu | Leu | Asp | Asp | Glu | Asn | Leu | Asp | Pro | Tyr | Asp | Thr | Ala | Asp | Leu |
| 545 |     |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |
| Ala | Gln | Pro | Ile | Ala | Glu | Val | Pro | Leu | Leu | Tyr | Leu | Leu | Asp | Val | Thr |
|     |     |     |     | 565 |     |     |     |     | 570 |     |     |     |     | 575 |     |
| Ala | Lys | His | Ile | Asn | Thr | Asp | Asn | Phe | Tyr | Pro | Glu | Gly | Leu | Asn | Thr |
|     |     |     | 580 |     |     |     |     | 585 |     |     |     |     | 590 |     |     |
| Thr | Gln | His | Tyr | Gly | Tyr | Gln | Gly | Val | Trp | Ser | Pro | Tyr | Trp | Ile | Glu |
|     |     |     | 595 |     |     |     | 600 |     |     |     |     |     | 605 |     |     |

Thr Ile Thr Thr Ser Asp Thr Ser Ser Glu Asp Thr Val Asn Thr Leu  
 610 615 620  
 His Arg Gln Leu Tyr Gly Asp Trp Thr Pro Thr Gly Tyr Lys Val Asn  
 625 630 635 640  
 Pro Glu Asn Lys Gly Asp Ile Ala Leu Ser Ala Phe Trp Gln Ser Phe  
 645 650 655  
 His Asn Leu Phe Ala Thr Leu Arg Tyr Gln Thr Gln Gln Gly Gln Ile  
 660 665 670  
 Ala Pro Thr Ala Ser Gly Glu Ala Thr Arg Leu Phe Val His Gln Asn  
 675 680 685  
 Ser Asn Asn Asp Ala Lys Gly Phe His Met Glu Ala Thr Gly Tyr Ser  
 690 695 700  
 Leu Gly Thr Thr Ser Asn Thr Ala Ser Asn His Ser Phe Gly Val Asn  
 705 710 715 720  
 Phe Ser Gln Leu Phe Ser Asn Leu Tyr Glu Ser His Ser Asp Asn Ser  
 725 730 735  
 Val Ala Ser His Thr Thr Thr Val Ala Leu Gln Ile Asn Asn Pro Trp  
 740 745 750  
 Leu Gln Glu Arg Phe Ser Thr Ser Ala Ser Leu Ala Tyr Ser Tyr Ser  
 755 760 765  
 Asn His His Ile Lys Ala Ser Gly Tyr Ser Gly Lys Ile Gln Thr Glu  
 770 775 780  
 Gly Lys Cys Tyr Ser Thr Leu Arg Gly Gly Ser Leu Leu Leu Ser  
 785 790 795 800  
 Ile Ser Thr Met Ala Ile Thr Thr Ser Pro Leu His Ser Phe Tyr Pro  
 805 810 815  
 Ser Asn Cys Arg Ser Phe  
 820

&lt;210&gt;507

&lt;211&gt;155

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;507

Gly Ala Ala Leu Ser Cys Ser Leu Ser Leu Gln Trp Arg Ser Arg Pro  
 1 5 10 15  
 Leu His Phe Thr Pro Phe Ile Gln Ala Ile Ala Val Arg Ser Asn Gln  
 20 25 30  
 Thr Ala Phe Gln Glu Ser Gly Asp Lys Ala Arg Lys Phe Ser Val His  
 35 40 45  
 Lys Pro Leu Tyr Asn Leu Thr Val Pro Leu Gly Ile Gln Ser Ala Trp  
 50 55 60  
 Glu Ser Lys Phe Arg Leu Pro Thr Tyr Trp Asn Ile Glu Leu Ala Tyr  
 65 70 75 80  
 Gln Pro Val Leu Tyr Gln Gln Asn Pro Glu Val Asn Val Ser Leu Glu  
 85 90 95  
 Ser Ser Gly Ser Ser Trp Leu Leu Ser Gly Thr Thr Leu Ala Arg Asn  
 100 105 110  
 Ala Ile Ala Phe Lys Gly Arg Asn Gln Ile Phe Ile Phe Pro Lys Leu  
 115 120 125  
 Ser Val Phe Leu Asp Tyr Gln Gly Ser Val Ser Ser Ser Thr Thr Thr  
 130 135 140  
 His Tyr Leu His Ala Gly Thr Thr Phe Lys Phe  
 145 150 155

&lt;210&gt;508

&lt;211&gt;778

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;508

Glu Val Phe Met Ala Ser Gly Ile Gly Gly Ser Ser Gly Leu Gly Lys  
 1 5 10 15  
 Ile Pro Pro Lys Asp Asn Gly Asp Arg Ser Arg Ser Pro Ser Pro Lys  
 20 25 30  
 Gly Glu Leu Gly Ser His Glu Ile Ser Leu Pro Pro Gln Glu His Gly  
 35 40 45

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Glu | Gly | Ala | Ser | Gly | Ser | Ser | His | Ile | His | Ser | Ser | Ser | Ser | Phe |
| 50  |     |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Leu | Pro | Glu | Asp | Gln | Glu | Ser | Gln | Ser | Ser | Ser | Ser | Ala | Ala | Ser | Ser |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Pro | Gly | Phe | Phe | Ser | Arg | Val | Arg | Ser | Gly | Val | Asp | Arg | Ala | Leu | Lys |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ser | Phe | Gly | Asn | Phe | Phe | Ser | Ala | Glu | Ser | Thr | Ser | Gln | Ala | Arg | Glu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Thr | Arg | Gln | Ala | Phe | Val | Arg | Leu | Ser | Lys | Thr | Ile | Thr | Ala | Asp | Glu |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Arg | Arg | Asp | Val | Asp | Ser | Ser | Ser | Ala | Ala | Ala | Thr | Glu | Ala | Arg | Val |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ala | Glu | Asp | Ala | Ser | Val | Ser | Gly | Glu | Asn | Pro | Ser | Gln | Gly | Val | Pro |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     |     | 160 |
| Glu | Thr | Ser | Ser | Gly | Pro | Glu | Pro | Gln | Arg | Leu | Phe | Ser | Leu | Pro | Ser |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Val | Lys | Lys | Gln | Ser | Gly | Leu | Gly | Arg | Leu | Val | Gln | Thr | Val | Arg | Asp |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Arg | Ile | Val | Leu | Pro | Ser | Gly | Ala | Pro | Pro | Thr | Asp | Ser | Glu | Pro | Leu |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Ser | Leu | Tyr | Glu | Leu | Asn | Leu | Arg | Leu | Ser | Ser | Leu | Arg | Gln | Glu | Leu |
|     |     | 210 |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Ser | Asp | Ile | Gln | Ser | Asn | Asp | Gln | Leu | Thr | Pro | Glu | Glu | Lys | Ala | Glu |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Ala | Thr | Val | Thr | Ile | Gln | Gln | Leu | Ile | Gln | Ile | Thr | Glu | Phe | Gln | Cys |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Gly | Tyr | Met | Glu | Ala | Thr | Gln | Ser | Ser | Val | Ser | Leu | Ala | Glu | Ala | Arg |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Phe | Lys | Gly | Val | Glu | Thr | Ser | Asp | Glu | Ile | Asn | Ser | Leu | Cys | Ser | Glu |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Leu | Thr | Asp | Pro | Glu | Leu | Gln | Glu | Leu | Met | Ser | Asp | Gly | Asp | Ser | Leu |
|     |     | 290 |     |     |     |     | 295 |     |     |     | 300 |     |     |     |     |
| Gln | Asn | Leu | Leu | Asp | Glu | Thr | Ala | Asp | Asp | Leu | Glu | Ala | Ala | Leu | Ser |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| His | Ala | Arg | Leu | Ser | Phe | Ser | Leu | Asp | Asp | Asn | Pro | Thr | Pro | Ile | Asp |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Asn | Asn | Pro | Thr | Leu | Ile | Ser | Gln | Glu | Glu | Pro | Ile | Tyr | Glu | Glu | Ile |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Gly | Gly | Ala | Ala | Asp | Pro | Gln | Arg | Thr | Arg | Glu | Asn | Trp | Ser | Thr | Arg |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Leu | Trp | Asn | Gln | Ile | Arg | Glu | Ala | Leu | Val | Ser | Leu | Leu | Gly | Met | Ile |
|     |     | 370 |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Leu | Ser | Ile | Leu | Gly | Ser | Ile | Leu | His | Arg | Leu | Arg | Ile | Ala | Arg | His |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Ala | Ala | Ala | Glu | Ala | Val | Gly | Arg | Cys | Cys | Thr | Cys | Arg | Gly | Glu | Glu |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Cys | Thr | Ser | Ser | Glu | Glu | Asp | Ser | Met | Ser | Val | Gly | Ser | Pro | Ser | Glu |
|     |     |     |     | 420 |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Ile | Asp | Glu | Thr | Glu | Arg | Thr | Gly | Ser | Pro | His | Asp | Val | Pro | Arg | Arg |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Asn | Gly | Ser | Pro | Arg | Glu | Asp | Ser | Pro | Leu | Met | Asn | Ala | Leu | Val | Gly |
|     |     | 450 |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Trp | Ala | His | Lys | His | Gly | Ala | Lys | Thr | Lys | Glu | Ser | Ser | Glu | Ser | Ser |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Thr | Pro | Glu | Ile | Ser | Ile | Ser | Ala | Pro | Ile | Val | Arg | Gly | Trp | Ser | Gln |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |     |
| Asp | Ser | Ser | Val | Ser | Phe | Ile | Val | Met | Glu | Asp | Asp | His | Ile | Phe | Tyr |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |
| Asp | Val | Pro | Arg | Arg | Lys | Asp | Gly | Ile | Tyr | Asp | Val | Pro | Ser | Ser | Pro |
|     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |
| Arg | Trp | Ser | Pro | Ala | Arg | Glu | Leu | Glu | Glu | Asp | Val | Phe | Gly | Asp | Tyr |
|     |     | 530 |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |
| Glu | Val | Pro | Ile | Thr | Ser | Ala | Glu | Pro | Ser | Lys | Asp | Lys | Asn | Ile | Tyr |
| 545 |     |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |

Met Thr Pro Arg Leu Ala Thr Pro Ala Ile Tyr Asp Leu Pro Ser Arg  
565 570 575  
Pro Gly Ser Ser Gly Ser Ser Arg Ser Pro Ser Ser Asp Arg Val Arg  
580 585 590  
Ser Ser Ser Pro Asn Arg Arg Gly Val Pro Leu Pro Pro Val Pro Ser  
595 600 605  
Pro Ala Met Ser Glu Glu Gly Ser Ile Tyr Glu Asp Met Ser Gly Ala  
610 615 620  
Ser Gly Ala Gly Glu Ser Asp Tyr Glu Asp Met Ser Arg Ser Pro Ser  
625 630 635 640  
Pro Arg Gly Asp Leu Asp Glu Pro Ile Tyr Ala Asn Thr Pro Glu Asp  
645 650 655  
Asn Pro Phe Thr Gln Arg Asn Ile Asp Arg Ile Leu Gln Glu Arg Ser  
660 665 670  
Gly Gly Ala Ser Ala Ser Pro Val Glu Pro Ile Tyr Asp Glu Ile Pro  
675 680 685  
Trp Ile His Gly Arg Pro Pro Ala Thr Leu Pro Arg Pro Glu Asn Thr  
690 695 700  
Leu Thr Asn Val Ser Leu Arg Val Ser Pro Gly Phe Gly Pro Glu Val  
705 710 715 720  
Arg Ala Ala Leu Leu Ser Glu Ser Val Ser Ala Val Met Val Glu Ala  
725 730 735  
Glu Ser Ile Val Pro Pro Thr Glu Pro Gly Asp Gly Glu Ser Glu Tyr  
740 745 750  
Leu Glu Pro Leu Gly Gly Leu Val Ala Thr Thr Lys Ile Leu Leu Gln  
755 760 765  
Lys Gly Trp Pro Arg Gly Glu Ser Asn Ala  
770 775

&lt;210&gt;509

&lt;211&gt;511

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;509

Gly Ser Ile Met Ala Val Gly Gly Val Gly Gly Ser Arg Ser Pro Ser  
1 5 10 15  
Pro Ile Pro Pro Asn Arg Arg Asn Ser Glu Asp Gly Lys Val Ser Pro  
20 25 30  
Lys Asp Asn Leu Gly Glu His Thr Val Ser Ser Ser Asp Ser Ser Leu  
35 40 45  
Ala Ser Gln Gly Pro Thr Ile Glu Glu Arg Lys Ala Gln Leu Gly Gly  
50 55 60  
Thr Asp Lys Ile Pro Leu Pro Ser Val Lys Glu Pro Gly Asp Ser Pro  
65 70 75 80  
Thr Ser Gly Arg Ser Gly Val Leu Gln Arg Ile Trp Lys Gly Val Lys  
85 90 95  
Gly Val Phe Lys Lys Thr Pro Gln Ala Arg Pro Glu Val Ser Ser Pro  
100 105 110  
Arg Leu Pro Ser His Val Gln His Gly Gln Arg Leu Pro Gly Leu Glu  
115 120 125  
Gly Phe Arg Asp Arg Ile Gln Lys Arg Ser Glu Asn Pro Glu Ala Asp  
130 135 140  
Leu Gly Lys Met Lys Arg Ser Tyr Ser Asp Gly Asp Leu Asp Arg Val  
145 150 155 160  
Gly His Asp Ser Asn Glu Asp Ser Thr Glu Asp Ser Arg Ser Glu Gly  
165 170 175  
Gly Glu Pro Ser Ser Lys Ser Ser Ser Phe Leu Ser Gly Val Arg Gly  
180 185 190  
Ala Val Ser Lys Val His Gly Ala Leu Gly Asp Ile Lys Gly Lys Phe  
195 200 205  
Gln Arg Ser Ala Ser Glu Asp Asp Leu Thr Thr Gln Gly Glu Asp Ser  
210 215 220  
Ala Gly Asp Thr Val Lys Glu Arg Arg Ser Glu Glu Ala Glu Ala Ser  
225 230 235 240  
Ser Lys Ser Ser Ser Phe Leu Ser Gly Val Arg Gly Ala Thr Ser Thr

245 250 255  
 Val Gln Gly Ala Leu Gly Asp Ala Lys Glu Lys Val Ser Ala Phe Gly  
 260 265 270  
 Glu Gln Ala Ala Gly Ala Ile Arg Ser Ala Pro Gly Asn Ile Arg Thr  
 275 280 285  
 Arg Phe Gln Arg Ser Ser Ser Glu Gly Asp Leu Ser Asn Val Asn Lys  
 290 295 300  
 Ala Ala Lys His Leu Arg Lys Ala Leu Glu Asn Leu Glu Lys Val Ala  
 305 310 315 320  
 Pro Glu Gln Val Ser Pro Glu Val Ala Ser Arg Val Gln Ser Leu Leu  
 325 330 335  
 Ala Arg Met Glu Gln Leu Thr His Gln Glu Pro Pro Thr Val Glu Asp  
 340 345 350  
 Leu Ile Thr Phe Val Glu Ser Asn Val Gly Ser Asp Ser Val Glu Tyr  
 355 360 365  
 Ala Ser Ile Val Pro Gln Asp Gly Ser Gln Ala Pro Ala Glu Thr Ala  
 370 375 380  
 Glu Ala Pro Glu Thr Gly Gly Val Glu Gly Ser Ala Ala Gln Gly Ala  
 385 390 395 400  
 Trp Lys Ala Leu Arg Asp Phe Val Val Ser Ile Phe Gln Ala Val Ala  
 405 410 415  
 Ser Phe Phe Arg Ala Ile Ala Ser Arg Leu Ser Ser Ala Arg Arg Glu  
 420 425 430  
 Ser Ala Val Asp Asp Leu Ala Ser Glu Ser Asn Thr Gln Trp Phe Val  
 435 440 445  
 Glu Gln Glu Gly Val Ser Asn Pro Ser Ala Ala Pro Ser Leu Ser Phe  
 450 455 460  
 Ala Glu Glu Ile Ala Arg Arg Ala Ala Glu Met Ser Asn Arg Asn Ala  
 465 470 475 480  
 Gln Ser Leu Glu Lys Leu Glu Ser Gly Asn Val Thr Asp Pro Val Ile  
 485 490 495  
 Gln Gln Gly Leu Gly Leu Ala Arg Ser Phe Ala Pro Glu Gly Gln  
 500 505 510

&lt;210&gt;510

&lt;211&gt;122

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;510

Met Thr Gly Ser Val Thr Leu Pro Asp Ser Asn Phe Ser Arg Leu Trp  
 1 5 10 15  
 Ala Phe Leu Leu Leu Ile Ser Ala Ala Leu Arg Ala Ile Ser Ser Ala  
 20 25 30  
 Lys Asp Lys Leu Gly Ala Ala Asp Gly Phe Glu Thr Pro Ser Cys Ser  
 35 40 45  
 Thr Asn His Cys Val Leu Leu Ser Asp Ala Arg Ser Ser Thr Ala Asp  
 50 55 60  
 Ser Arg Arg Ala Glu Leu Asn Leu Glu Ala Ile Ala Leu Lys Lys Leu  
 65 70 75 80  
 Ala Thr Ala Trp Asn Met Leu Thr Thr Lys Ser Arg Asn Ala Phe His  
 85 90 95  
 Ala Pro Cys Ala Ala Asp Pro Ser Thr Pro Pro Val Ser Gly Ala Ser  
 100 105 110  
 Ala Val Ser Ala Gly Ala Cys Asp Pro Ser  
 115 120

&lt;210&gt;511

&lt;211&gt;598

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;511

Leu Lys Ile Ile Ile Ser Ile Ser Phe Met Ser Thr Ser Pro Ile Ser  
 1 5 10 15  
 Asn Asp Pro Arg Tyr Leu Ser Leu Ser Asn Ala Thr Glu Lys Thr Ser  
 20 25 30  
 Leu Leu Ala Asn Ser Arg Ser Leu Ser Pro Val Pro Asn Ser Leu Val



687

545                      550                      555                      560  
 Ser Ile Ala Thr Asp Leu Val Val Glu Ala Leu Ala Ala Ser His Asp  
                                  565                      570                      575  
 His Leu Phe Asp Leu Asp Gly Pro Val Asp Phe Ile Asp Val Asp Val  
                                  580                      585                      590  
 Asp Ile Asp Gly Ala Ala  
                                  595  
 <210>512  
 <211>99  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>512  
 Gly Thr Pro Gly Ala Lys Thr Val Lys Ala Thr Thr Thr Thr Glu Thr  
   1                                 5                                 10                                 15  
 Ala Thr Ser Lys Thr Thr Arg Pro Ala Asn Lys Val Thr Glu Trp Val  
                                  20                                 25                                 30  
 Lys Ile Leu Phe Arg Asn Pro Val Ser Ser Gly Leu Leu Gly Thr Arg  
                                  35                                 40                                 45  
 Glu Phe Gly Thr Gly Glu Arg Leu Arg Leu Phe Ala Arg Arg Glu Val  
                                  50                                 55                                 60  
 Phe Ser Val Ala Leu Asp Lys Asp Lys Tyr Arg Gly Ser Leu Leu Ile  
   65                                 70                                 75                                 80  
 Gly Asp Val Asp Ile Lys Glu Ile Leu Ile Ile Ile Phe Asn Tyr Lys  
                                  85                                 90                                 95  
 Ile Asn Tyr  
  
 <210>513  
 <211>722  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>513  
 Pro Ser Met Val Asp Lys Leu Ile His Pro Trp Asp Leu Asp Leu Leu  
   1                                 5                                 10                                 15  
 Val Ser Gly Arg Gln Lys Asp Pro His Lys Leu Leu Gly Ile Leu Ala  
                                  20                                 25                                 30  
 Ser Glu Asp Ser Ser Asp His Ile Val Ile Phe Arg Pro Gly Ala His  
                                  35                                 40                                 45  
 Thr Val Ala Ile Glu Leu Leu Gly Glu Leu His His Ala Val Ala Tyr  
   50                                 55                                 60  
 Arg Ser Gly Leu Phe Phe Leu Ser Val Pro Lys Gly Ile Gly His Gly  
   65                                 70                                 75                                 80  
 Asp Tyr Arg Val Tyr His Gln Asn Gly Leu Leu Ala His Asp Pro Tyr  
                                  85                                 90                                 95  
 Ala Phe Pro Pro Leu Trp Gly Glu Ile Asp Ser Phe Leu Phe His Arg  
                                  100                                 105                                 110  
 Gly Thr His Tyr Arg Ile Tyr Glu Arg Met Gly Ala Ile Pro Met Glu  
                                  115                                 120                                 125  
 Val Gln Gly Ile Ser Gly Val Leu Phe Val Leu Trp Ala Pro His Ala  
   130                                 135                                 140  
 Gln Arg Val Ser Val Val Gly Asp Phe Asn Phe Trp His Gly Leu Val  
   145                                 150                                 155                                 160  
 Asn Pro Leu Arg Lys Ile Ser Asp Gln Gly Ile Trp Glu Leu Phe Val  
                                  165                                 170                                 175  
 Pro Gly Leu Gly Glu Gly Ile Arg Tyr Lys Trp Glu Ile Val Thr Gln  
                                  180                                 185                                 190  
 Ser Gly Asn Val Ile Val Lys Thr Asp Pro Tyr Gly Lys Ser Phe Asp  
                                  195                                 200                                 205  
 Pro Pro Pro Gln Gly Thr Ala Arg Val Ala Asp Ser Glu Ser Tyr Ser  
   210                                 215                                 220  
 Trp Ser Asp His Arg Trp Met Glu Arg Arg Ser Lys Gln Ser Glu Gly  
   225                                 230                                 235                                 240  
 Pro Val Thr Ile Tyr Glu Val His Leu Gly Ser Trp Gln Trp Gln Glu  
                                  245                                 250                                 255  
 Gly Arg Pro Leu Ser Tyr Ser Glu Met Ala His Arg Leu Ala Ser Tyr

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<210>514
<211>340
<212>PRT
<213>Chlamydia pneumoniae
<400>514
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Gly Arg Gly Arg Arg Ala Asp Trp Gly Asp Cys Met Ile Asp Ile Met  
 1 5 10 15  
 Gln His Phe Lys Pro Tyr Thr Met Val Pro Gly Gln Lys Leu Pro Ile  
 20 25 30  
 Pro Gly Ser Leu Leu Tyr Ala Gln Val Phe Pro Thr Leu Trp Arg Leu  
 35 40 45  
 Phe Ser Ser Lys His Glu Ile Leu Asn Glu Gln Thr Leu Gln Val Gln  
 50 55 60  
 Gly Pro Leu Lys Arg Phe Ala Val Phe Gln Asp Leu His Arg Gly Gly  
 65 70 75 80  
 Leu Ala Val Thr Ser Glu Arg Tyr Lys Tyr Tyr Leu Leu Pro Ser Gly  
 85 90 95  
 Glu Cys Thr Gln Ser Ile Lys Gly Lys Leu Pro Ser Ala Ala Gln Ala  
 100 105 110  
 Gly Pro Leu Leu Ser Leu Gly Val His Lys His Ala Asp Trp Gln Lys  
 115 120 125  
 Val Arg Cys Arg Arg Asp Leu Lys Glu Ile Leu Pro Leu Trp Phe Arg  
 130 135 140  
 Phe Ala Ala Met Ala Pro Lys Gly Ser Tyr Arg Asp Leu Glu Thr Thr  
 145 150 155 160  
 Ala Ile Gly Ser Leu Val Lys Thr Ala His Gln Arg Val Leu His Arg  
 165 170 175  
 Glu Thr Thr Glu Ile Ala Pro Ala Leu Leu Ser Ile Ala Leu Ala Gly  
 180 185 190  
 Phe Ser Glu Cys Phe Leu Pro Arg Ser Tyr Asp Glu Glu Phe Gln Gly  
 195 200 205  
 Ile Leu Pro Gln Asp Gly Asp Pro Glu Gly Gly Val Pro Phe Glu Leu  
 210 215 220  
 Leu Ser Tyr Ser Phe Gly Met Ile Gln Asp Ile Phe Leu Arg His Gln  
 225 230 235 240  
 Gly Gln Leu Val Glu Ile Leu Pro Ala Leu Pro Pro Glu Phe Pro Cys  
 245 250 255  
 Gly Arg Leu Ile His Val Ala Leu Pro Asn Leu Gly Thr Leu Ser Ile  
 260 265 270  
 Val Trp Thr Lys Lys Thr Ile Arg Gln Val Glu Leu His Ala Glu Tyr  
 275 280 285  
 Ser Gly Glu Val Phe Leu Lys Phe Cys Ser Ser Leu Cys Ser Ala Arg  
 290 295 300  
 Leu Arg Glu Trp Ser Glu Arg Arg Leu Ser Gly Ser Lys Arg Leu Ser  
 305 310 315 320  
 Leu Gly Glu Thr Leu Glu Ile Lys Ala Gly Thr Thr Tyr Leu Trp Asp  
 325 330 335  
 Cys Phe His Lys  
 340

&lt;210&gt;515

&lt;211&gt;423

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;515

Arg Tyr Met Thr Val Ala Glu Val Lys Gly Thr Phe Lys Leu Val Cys  
 1 5 10 15  
 Leu Gly Cys Arg Val Asn Gln Tyr Glu Val Gln Ala Tyr Arg Asp Gln  
 20 25 30  
 Leu Thr Ile Leu Gly Tyr Gln Glu Val Leu Asp Ser Glu Ile Pro Ala  
 35 40 45  
 Asp Leu Cys Ile Ile Asn Thr Cys Ala Val Thr Ala Ser Ala Glu Ser  
 50 55 60  
 Ser Gly Arg His Ala Val Arg Gln Leu Cys Arg Gln Asn Pro Thr Ala  
 65 70 75 80  
 His Ile Val Val Thr Gly Cys Leu Gly Glu Ser Asp Lys Glu Phe Phe  
 85 90 95  
 Ala Ser Leu Asp Arg Gln Cys Thr Leu Val Ser Asn Lys Glu Lys Ser  
 100 105 110  
 Arg Leu Ile Glu Lys Ile Phe Ser Tyr Asp Thr Thr Phe Pro Glu Phe

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      115              120              125
Lys Ile His Ser Phe Glu Gly Lys Ser Arg Ala Phe Ile Lys Val Gln
      130              135              140
Asp Gly Cys Asn Ser Phe Cys Ser Tyr Cys Ile Ile Pro Tyr Leu Arg
145      150              155              160
Gly Arg Ser Val Ser Arg Pro Ala Glu Lys Ile Leu Ala Glu Ile Ala
      165              170              175
Gly Val Val Asp Gln Gly Tyr Arg Glu Val Val Ile Ala Gly Ile Asn
      180              185              190
Val Gly Asp Tyr Cys Asp Gly Glu Arg Ser Leu Ala Ser Leu Ile Glu
      195              200              205
Gln Val Asp Gln Ile Pro Gly Ile Glu Arg Ile Arg Ile Ser Ser Ile
      210              215              220
Asp Pro Asp Asp Ile Thr Glu Asp Leu His Arg Ala Ile Thr Ser Ser
225      230              235              240
Arg His Thr Cys Pro Ser Ser His Leu Val Leu Gln Ser Gly Ser Asn
      245              250              255
Ser Ile Leu Lys Arg Met Asn Arg Lys Tyr Ser Arg Gly Asp Phe Leu
      260              265              270
Asp Cys Val Glu Lys Phe Arg Ala Ser Asp Pro Arg Tyr Ala Phe Thr
      275              280              285
Thr Asp Val Ile Val Gly Phe Pro Gly Glu Ser Asp Gln Asp Phe Glu
      290              295              300
Asp Thr Leu Arg Ile Ile Glu Asp Val Gly Phe Ile Lys Val His Ser
305      310              315              320
Phe Pro Phe Ser Ala Arg Arg Arg Thr Lys Ala Tyr Thr Phe Asp Asn
      325              330              335
Gln Ile Pro Asn Gln Val Ile Tyr Glu Arg Lys Lys Tyr Leu Ala Glu
      340              345              350
Val Ala Lys Arg Val Gly Gln Lys Glu Met Met Lys Arg Leu Gly Glu
      355              360              365
Thr Thr Glu Val Leu Val Glu Lys Val Thr Gly Gln Val Ala Thr Gly
      370              375              380
His Ser Pro Tyr Phe Glu Lys Val Ser Phe Pro Val Val Gly Thr Val
385      390              395              400
Ala Ile Asn Thr Leu Val Ser Val Arg Leu Asp Arg Val Glu Glu Glu
      405              410              415
Gly Leu Ile Gly Glu Ile Val
      420

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&lt;210&gt;516

&lt;211&gt;472

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;516

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Leu Asp Thr Ile Asp Thr Pro Gly Glu Gln Gly Ser Gln Ser Phe Gly
 1      5      10      15
Asn Ser Leu Gly Ala Arg Phe Asp Leu Pro Arg Lys Glu Gln Asp Pro
      20      25      30
Ser Gln Ala Leu Ala Val Ala Ser Tyr Gln Asn Lys Thr Asp Ser Gln
      35      40      45
Val Val Glu Glu His Leu Asp Glu Leu Ile Ser Leu Ala Asp Ser Cys
      50      55      60
Gly Ile Ser Val Leu Glu Thr Arg Ser Trp Ile Leu Lys Thr Pro Ser
      65      70      75      80
Ala Ser Thr Tyr Ile Asn Val Gly Lys Leu Glu Glu Ile Glu Glu Ile
      85      90      95
Leu Lys Glu Phe Pro Ser Ile Gly Thr Leu Ile Ile Asp Glu Glu Ile
      100      105      110
Thr Pro Ser Gln Gln Arg Asn Leu Glu Lys Arg Leu Gly Leu Val Val
      115      120      125
Leu Asp Arg Thr Glu Leu Ile Leu Glu Ile Phe Ser Ser Arg Ala Leu
      130      135      140
Thr Ala Glu Ala Asn Ile Gln Val Gln Leu Ala Gln Ala Arg Tyr Leu
145      150      155      160

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Leu Pro Arg Leu Lys Arg Leu Trp Gly His Leu Ser Arg Gln Lys Ser  
 165 170 175  
 Gly Gly Gly Ser Gly Gly Phe Val Lys Gly Glu Gly Glu Lys Gln Ile  
 180 185 190  
 Glu Leu Asp Arg Arg Met Val Arg Glu Arg Ile His Lys Leu Ser Ala  
 195 200 205  
 Gln Leu Lys Ala Val Ile Lys Gln Arg Ala Glu Arg Arg Lys Val Lys  
 210 215 220  
 Ser Arg Arg Gly Ile Pro Thr Phe Ala Leu Ile Gly Tyr Thr Asn Ser  
 225 230 235 240  
 Gly Lys Ser Thr Leu Leu Asn Leu Leu Thr Ala Ala Asp Thr Tyr Val  
 245 250 255  
 Glu Asp Lys Leu Phe Ala Thr Leu Asp Pro Lys Thr Arg Lys Cys Val  
 260 265 270  
 Leu Pro Gly Gly Arg His Val Leu Leu Thr Asp Thr Val Gly Phe Ile  
 275 280 285  
 Arg Lys Leu Pro His Thr Leu Val Ala Ala Phe Lys Ser Thr Leu Glu  
 290 295 300  
 Ala Ala Phe His Glu Asp Val Leu Leu His Val Val Asp Ala Ser His  
 305 310 315 320  
 Pro Leu Ala Leu Glu His Val Gln Thr Thr Tyr Asp Leu Phe Gln Glu  
 325 330 335  
 Leu Lys Ile Glu Lys Pro Arg Ile Ile Thr Val Leu Asn Lys Val Asp  
 340 345 350  
 Arg Leu Pro Gln Gly Ser Ile Pro Met Lys Leu Arg Leu Leu Ser Pro  
 355 360 365  
 Leu Pro Val Leu Ile Ser Ala Lys Thr Gly Glu Gly Ile Gln Asn Leu  
 370 375 380  
 Leu Ser Leu Met Thr Glu Ile Ile Gln Glu Lys Ser Leu His Val Thr  
 385 390 395 400  
 Leu Asn Phe Pro Tyr Thr Glu Tyr Gly Lys Phe Thr Glu Leu Cys Asp  
 405 410 415  
 Ala Gly Val Val Ala Ser Ser Arg Tyr Gln Glu Asp Phe Leu Val Val  
 420 425 430  
 Glu Ala Tyr Leu Pro Lys Glu Leu Gln Lys Lys Phe Arg Pro Phe Ile  
 435 440 445  
 Ser Tyr Val Phe Pro Glu Asp Cys Gly Asp Asp Glu Gly Arg Gly Pro  
 450 455 460  
 Val Leu Glu Ser Ser Phe Gly Asp  
 465 470  
 <210>517  
 <211>273  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>517  
 Ala Ile Gly Met Val Arg Asp Ile Gln Ser Glu Ser Ile Gly Lys Leu  
 1 5 10 15  
 Val Phe Leu Gly Thr Gly Asn Pro Glu Gly Ile Pro Val Pro Phe Cys  
 20 25 30  
 Ser Cys Arg Val Cys Gln Asn Thr Gly Ile His Arg Leu Arg Ser Ser  
 35 40 45  
 Val Leu Ile Gln Tyr Gln Asn Lys Thr Leu Val Ile Asp Ala Gly Pro  
 50 55 60  
 Asp Phe Arg Thr Gln Met Leu Val Ala Gly Val Ser Glu Leu Asp Gly  
 65 70 75 80  
 Val Phe Leu Thr His Pro His Tyr Asp His Ile Gly Gly Ile Asp Asp  
 85 90 95  
 Leu Arg Ala Trp Tyr Ile Val Thr Gln Arg Ser Leu Pro Leu Val Leu  
 100 105 110  
 Ser Ala Ser Thr Tyr Arg Phe Leu Asn Lys Ala Lys Glu Tyr Leu Phe  
 115 120 125  
 Ala Thr Pro Asn Val Glu Ser Ser Leu Pro Ala Val Leu Glu Phe Thr  
 130 135 140  
 Ile Leu Asn Glu Asp Cys Gly Gln Glu Glu Phe Gln Gly Ile Pro Tyr

145 150 155 160  
 Thr Tyr Val Ser Tyr Tyr Gln Lys Ser Cys His Val Thr Gly Phe Arg  
 165 170 175  
 Phe Gly Asn Leu Ala Tyr Leu Thr Asp Leu Cys Ser Tyr Asp Ala Lys  
 180 185 190  
 Ile Phe Ser Tyr Leu Asp Asn Val Glu Thr Leu Ile Leu Ser Ala Gly  
 195 200 205  
 Pro Ser Glu Thr Pro Ile Pro Phe Gln Gly His Lys Ser Ser His Leu  
 210 215 220  
 Thr Val Glu Glu Ala Lys Ala Phe Ala Asn His Ala Gly Ile Lys Asn  
 225 230 235 240  
 Leu Ile Ile Thr His Ile Ser His Cys Leu Glu Ala Glu Arg Asp Gln  
 245 250 255  
 His Pro Glu Val Thr Phe Ala Tyr Asp Gly Met Glu Val Leu Trp Thr  
 260 265 270  
 Leu

&lt;210&gt;518

&lt;211&gt;242

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;518

Ser Asp Xaa Xaa Ile Ser Trp Gly Ile Ser Gly Arg Leu Gly Glu Phe  
 1 5 10 15  
 Val Ser Lys Lys Glu Gln Asp Cys Met Leu Gly Ser Leu Pro Cys Tyr  
 20 25 30  
 Pro Gly Ala Gly Asn Ile Glu Glu Tyr Lys Asn Arg Tyr Phe Tyr Cys  
 35 40 45  
 Gln Leu Cys Ala Glu Val Val Ser Pro Tyr Val Val Pro Val Ile Val  
 50 55 60  
 Val Asp Val Gln Gly Ala Pro Pro Thr Gly Ile Leu Gln Val Leu Arg  
 65 70 75 80  
 Cys Lys Gln His Lys Phe Gln Gly Leu Pro Val His Gly Pro Ile Thr  
 85 90 95  
 Ser Leu Trp Ala Leu Glu Pro Val Gly Lys Gly Ala Pro Gln Leu Glu  
 100 105 110  
 Ser Ala Met Tyr Glu Leu Cys Ser Gln Val Arg Asn Phe Asp Ile Cys  
 115 120 125  
 Ser Ile Val Ser Trp Val Phe Gly Gly Leu Cys Ile Phe Ala Gly Leu  
 130 135 140  
 Ile Val Gly Val Met Val Glu Ala Pro Leu Ile Ala Gly Leu Ser Ala  
 145 150 155 160  
 Trp Val Ile Pro Cys Ile Ile Gly Gly Val Gly Ala Ile Leu Cys Leu  
 165 170 175  
 Phe Ala Ile Leu Met Ala Tyr Leu Gly Arg Gly Arg Val Arg Glu Trp  
 180 185 190  
 Leu Asn Leu Ser His Glu Tyr Ile Thr Gln Cys His Cys Arg Gln Ile  
 195 200 205  
 Gln Ala His Ser Gln Asn Tyr Ser Val Ile Thr Glu Tyr Pro Ala Thr  
 210 215 220  
 Cys Ala Leu Ser Gln Pro Ile Thr Lys Leu Pro Asn Gly Ser Arg Arg  
 225 230 235 240  
 Asp Asn

&lt;210&gt;519

&lt;211&gt;545

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;519

Ser Cys Leu Arg Ile Glu Gly Ile Leu Met Ala Thr Ser Val Pro Val  
 1 5 10 15  
 Thr Ser Ser Thr Ser Val Gly Glu Ala Asn Ser Ser Asn Glu Arg Phe  
 20 25 30  
 Thr Glu Arg Thr Ser Arg Met Tyr Tyr Ala Ala Leu Val Leu Gly Ala

694



545

&lt;210&gt;520

&lt;211&gt;237

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;520

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Met Ile Lys Gln Ile Gly Arg Phe Phe Arg Ala Phe Ile Phe Ile Met
 1           5           10           15
Pro Leu Ser Leu Thr Ser Cys Glu Ser Lys Ile Asp Arg Asn Arg Ile
           20           25           30
Trp Ile Val Gly Thr Asn Ala Thr Tyr Pro Pro Phe Glu Tyr Val Asp
           35           40           45
Ala Gln Gly Glu Val Val Gly Phe Asp Ile Asp Leu Ala Lys Ala Ile
           50           55           60
Ser Glu Lys Leu Gly Lys Gln Leu Glu Val Arg Glu Phe Ala Phe Asp
65           70           75           80
Ala Leu Ile Leu Asn Leu Lys Lys His Arg Ile Asp Ala Ile Leu Ala
           85           90           95
Gly Met Ser Ile Thr Pro Ser Arg Gln Lys Glu Ile Ala Leu Leu Pro
           100          105          110
Tyr Tyr Gly Asp Glu Val Gln Glu Leu Met Val Val Ser Lys Arg Ser
           115          120          125
Leu Glu Thr Pro Val Leu Pro Leu Thr Gln His Ser Ser Val Ala Val
           130          135          140
Gln Thr Gly Thr Phe Gln Glu His Tyr Leu Leu Ser Gln Pro Gly Ile
145           150           155           160
Cys Val Arg Ser Phe Asp Ser Thr Leu Glu Val Ile Met Glu Val Arg
           165           170           175
Tyr Gly Lys Ser Pro Val Ala Val Leu Glu Pro Ser Val Gly Arg Val
           180           185           190
Val Leu Lys Asp Phe Pro Asn Leu Val Ala Thr Arg Leu Glu Leu Pro
           195          200          205
Pro Glu Cys Trp Val Leu Gly Cys Gly Leu Gly Val Leu Lys Ile Val
           210          215          220
Leu Lys Lys Tyr Lys Arg Phe Asn Lys Arg Leu Gln Ile
225           230           235

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&lt;210&gt;521

&lt;211&gt;369

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;521

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Lys Leu Pro Asn Asn Arg Leu Arg Met Val Lys Thr Lys Asn Pro Met
 1           5           10           15
Phe Pro Ser Arg Ala Arg Arg Pro Gln Arg Thr His Pro Arg Leu Pro
           20           25           30
Pro Lys Leu Leu His Gln Arg Ala Gln Lys Ser Leu Lys Gln Pro Ala
           35           40           45
Asp Lys Lys Pro Thr Pro Pro Pro Glu Ala Pro Pro Pro Pro Val Arg
           50           55           60
Val Ala Thr Pro Met Pro Leu Arg Pro Ser Ser Gln Gly Tyr Trp Gln
65           70           75           80
Cys Leu Asn Arg Met Val Ser Met Val Leu Arg Arg Ala Pro Leu Pro
           85           90           95
Leu Pro Ala Met Gln Val Asp Pro Ile Leu Gly Asp Phe Asn Pro His
           100          105          110
Phe Val Ala Ser Tyr Pro Asn Arg Ile Asn Asn Glu Pro Met Tyr Phe
           115          120          125
Gln Ile Lys Gln Phe Lys Lys Ile Ala Gln Asn Pro Asp Leu Pro Gln
           130          135          140
Gln His Arg Arg Leu Ala Gln Leu Ser Leu Glu Gln Ala Leu Tyr Leu
145           150           155           160
Asn Asp Asn Tyr Tyr Leu Val Asn Val Pro Gly Asp Gly Asn Cys Phe
           165           170           175
Tyr Arg Ala Tyr Ala Val Gly Trp Leu Ser Ala Leu Tyr Glu Glu Ser

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<210>522

<211>637

<212>PRT

<213>Chlamydia pneumoniae

<400>522

696

Leu Tyr Thr Gln Ala Val Gln Leu Leu Phe Phe Ile Leu Gln His Pro  
 275 280 285  
 Gln Val Asn Asn Arg Pro Glu Thr Lys Asp Ala Val Lys Glu Leu Lys  
 290 295 300  
 Met Leu Leu Leu Pro Phe Leu Gln Tyr Ala Phe Lys Lys Val Glu Asn  
 305 310 315 320  
 Glu Lys Lys Leu Gln Lys Leu Leu Arg Ser Ile Leu Gly Ser Leu Val  
 325 330 335  
 Leu Lys Pro Pro Ala Arg Tyr Pro Ser Thr Pro Ser Asn Lys Asp Lys  
 340 345 350  
 Glu Thr Phe Cys Lys Phe Trp Ser Arg His Pro Glu Val Met Val Leu  
 355 360 365  
 Asp Pro Ile Leu Glu Lys Asn Cys Met Gln Phe Leu Arg Ala Thr Phe  
 370 375 380  
 Pro Asn Tyr Gln Leu Glu Thr Glu Ala Ile Leu Leu Glu Lys Glu Ile  
 385 390 395 400  
 Glu Ser Thr Phe Arg Asn Gly Trp Asn Val Phe Leu Thr Arg Leu Asn  
 405 410 415  
 Leu Phe Gly Ser Lys Leu Gly Ser Pro Ser Ser Pro Thr Ala Leu Ser  
 420 425 430  
 Asp Gln Phe Ser Lys Ser Phe Leu Ile Phe Cys Phe Leu Asn Asn Tyr  
 435 440 445  
 Pro Lys Leu Leu Gln Lys Lys Thr Pro Leu Ala Ala Arg Leu Asp Ala  
 450 455 460  
 Phe Gln Arg Glu Ala Ser His Arg Phe Thr Gln Val Lys Asp Lys Leu  
 465 470 475 480  
 Leu Leu Ser Leu Lys Tyr Gly Phe Pro Leu Ala Thr Ala Thr Ile Asn  
 485 490 495  
 Gln Tyr Ser Arg Ala Arg Asp Gln Leu Ile Cys Asn Leu Leu Lys Asn  
 500 505 510  
 Thr Val Thr Ala Ser Asp Gly Phe Cys Arg Ser Gly Phe Arg Gln Ser  
 515 520 525  
 Leu Ile Gly Tyr Leu His Ser Leu Ser Ser Asn Glu Leu Gly Asp Ile  
 530 535 540  
 Leu Asp Asp Val Lys Glu Gln Ala Glu Ala Asn Asp Val Ala Ala Met  
 545 550 555 560  
 Thr Thr Val Pro Leu Gln Pro Phe Ala Val Cys Leu Ile Met Ser Asp  
 565 570 575  
 Arg Asp Thr Val Ser Glu Glu Asn Ile Glu Asn Phe Val Ala Met His  
 580 585 590  
 Gly Phe Leu Asn Thr Ile Ser Pro Glu Arg Asp Ala Arg Ile Phe Leu  
 595 600 605  
 Ile Arg Phe Pro Asn His Tyr Gly Cys Leu Leu Pro Arg Asn Pro Arg  
 610 615 620  
 Thr Glu Asp Gln Asn Ser Lys Pro Asp Ser Ser Asn Pro  
 625 630 635

&lt;210&gt;523

&lt;211&gt;298

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;523

Arg Ser Glu Leu Lys Thr Gly Gln Leu Lys Ser Leu Val Leu His Glu  
 1 5 10 15  
 Val Leu Ile Leu Thr Phe Thr Tyr Pro Leu Pro Arg Thr Leu Lys Gln  
 20 25 30  
 His Pro Asp Glu Val His Thr Val Pro Ile Ser Pro Asn Leu Ser Phe  
 35 40 45  
 Gly Glu Gly Ser Pro Ile Leu Ile Ala Gly Pro Cys Thr Leu Glu Ser  
 50 55 60  
 Tyr Glu His Thr Val Ser Ala Leu Thr Val Lys Glu Ala Gly Ala  
 65 70 75 80  
 Gln Val Phe Arg Gly Ser Ile Arg Lys Pro Arg Thr Ser Pro Phe Ser  
 85 90 95  
 Phe Gln Gly Trp Glu Lys Glu Cys Val Leu Trp His Lys Glu Ala Gln

100 105 110  
 Ser Ile His Gly Leu Pro Thr Glu Thr Glu Val Leu Asp Val Arg Asp  
 115 120 125  
 Val Glu Ile Thr Ala Glu His Val Asp Ile Leu Arg Ile Gly Ala Lys  
 130 135 140  
 Asn Met His Asn Thr Pro Leu Leu Gln Glu Val Ser Lys Ser His Arg  
 145 150 155 160  
 Pro Ile Ile Leu Lys Arg Ser Pro Ala Ala Thr Leu Glu Glu Trp Leu  
 165 170 175  
 Cys Ala Ala Glu Tyr Ile Leu Ala Ser Ser Pro Ser Cys Pro Gly Val  
 180 185 190  
 Ile Leu Cys Glu Arg Gly Ile Arg Thr Phe Glu His Ser Thr Arg Tyr  
 195 200 205  
 Thr Leu Asp Leu Asn Thr Val Ala Leu Leu Lys Glu Ile Ser Ser Leu  
 210 215 220  
 Pro Val Ile Val Asp Pro Ser His Ala Ala Gly Lys Arg Ser Leu Val  
 225 230 235 240  
 Leu Pro Leu Ala Ser Ala Gly Leu Ser Val Gly Ala Asp Gly Leu Met  
 245 250 255  
 Ile Glu Val His Ala His Pro Glu Lys Ala Leu Cys Asp Ala Lys Gln  
 260 265 270  
 Gln Ile Thr Pro Glu Glu Leu His Leu Phe Ala Lys Lys His Phe Cys  
 275 280 285  
 Pro Ser Glu Ser Arg Ala His Ala Ile Ser  
 290 295  
 <210>524  
 <211>465  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>524  
 Ala Gln His Arg Ser Leu Leu Lys Gly Asn Ile Xaa His Leu Gly Cys  
 1 5 10 15  
 Gly Val Leu Tyr Phe Met Asn Phe Ser Leu Phe Leu Phe Phe Leu Ile  
 20 25 30  
 Ala Ile Gln Gly Ile Cys Leu Tyr Val Gly Arg Arg Gly Ser Lys Lys  
 35 40 45  
 Val Glu Asp Arg Glu Ser Tyr Phe Leu Ala Gly Arg Ser Leu Lys Ile  
 50 55 60  
 Phe Pro Leu Met Met Thr Phe Ile Ala Thr Gln Ile Gly Gly Gly Val  
 65 70 75 80  
 Leu Leu Gly Ala Ala Glu Glu Ala Phe Cys Tyr Gly Tyr Gly Gly Ile  
 85 90 95  
 Leu Tyr Pro Leu Gly Val Ala Leu Gly Leu Ile Phe Leu Gly Met Gly  
 100 105 110  
 Pro Gly Lys Arg Leu Ala Glu Gly Ser Leu Thr Thr Val Val Ser Ile  
 115 120 125  
 Phe Glu Val Phe Tyr Gly Ser Lys Lys Leu Arg Lys Ile Ala Phe Leu  
 130 135 140  
 Leu Ser Ala Gly Ser Leu Phe Phe Ile Leu Val Ala Gln Val Ile Ala  
 145 150 155 160  
 Leu Asp Arg Leu Phe Ser Ser Phe Pro Phe Gly Lys Tyr Val Thr Val  
 165 170 175  
 Ala Phe Trp Ile Val Leu Ala Ser Tyr Thr Ser Thr Gly Gly Phe Arg  
 180 185 190  
 Gly Val Val Arg Thr Asp Val Ile Gln Ala Gly Phe Leu Leu Ile Ala  
 195 200 205  
 Val Leu Val Cys Gly Val Ser Val Trp Leu Ser Val Pro Lys Ser Leu  
 210 215 220  
 Ser Val Leu Asp Pro Phe Gln Ser Leu Pro Cys Ala Lys Phe Ser Asn  
 225 230 235 240  
 Trp Ile Phe Met Pro Met Leu Phe Met Leu Val Glu Gln Asp Met Val  
 245 250 255  
 Gln Arg Cys Val Ala Ala Ser Ser Pro Lys Arg Leu Gln Trp Ala Ala  
 260 265 270

Val Gly Ala Gly Leu Val Leu Leu Leu Phe Asn Phe Ile Pro Leu Phe  
 275 280 285  
 Leu Gly Ser Leu Gly Ala Lys Ala Gly Leu Lys Ala Gly Cys Pro Leu  
 290 295 300  
 Ile Asp Thr Ile Ala Tyr Phe Cys Asn Pro Ser Leu Ala Ala Val Met  
 305 310 315 320  
 Ala Ala Ala Ile Gly Val Ala Ile Leu Ser Thr Ala Asp Ser Leu Met  
 325 330 335  
 Asn Ala Val Ser Gln Leu Ile Ala Glu Glu Tyr Pro Thr Leu Lys Ala  
 340 345 350  
 Pro Tyr Tyr Arg Tyr Leu Val Leu Gly Leu Ala Val Ala Ala Pro Leu  
 355 360 365  
 Val Ala Ile Gly Phe Thr Asn Ile Val Asp Val Leu Ile Leu Ser Tyr  
 370 375 380  
 Ser Leu Ser Val Cys Cys Leu Ser Val Pro Val Gly Phe Tyr Leu Leu  
 385 390 395 400  
 Ala Pro Lys Gly Arg Arg Val Ser Gly Ala Ala Ala Trp Ala Gly Val  
 405 410 415  
 Leu Val Gly Ala Leu Gly Tyr Gly Trp Val Gln Ile Val Ser Leu Gly  
 420 425 430  
 Met Phe Gly Glu Leu Leu Ala Trp Val Gly Ser Leu Val Ala Phe Ser  
 435 440 445  
 Phe Val Gly Phe Ile Glu Ile Thr Trp Lys Asn Lys Val Lys Thr Gln  
 450 455 460

Thr

465

&lt;210&gt;525

&lt;211&gt;237

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;525

Gly Leu Arg Ser Pro Gln Pro Leu Val Cys Glu Ala Ala Ser Ala Ala  
 1 5 10 15  
 Leu Cys Ser Leu Gly Ile His Gly Val Pro Leu Ala Lys Glu His Leu  
 20 25 30  
 Glu Ser Leu Ser Ser Arg Lys Ala Ala Ala Asn Leu Ser Ile Leu Leu  
 35 40 45  
 Leu Val Ser Arg Glu Asp Ile Glu Arg Ala Gly Asp Val Ile Ala Arg  
 50 55 60  
 Tyr Leu Ser Asn Pro Glu Met Cys Trp Ala Ile Glu Tyr Phe Leu Trp  
 65 70 75 80  
 Asp Ala Gln Trp Asn Leu Arg Gly Asp Thr Phe Pro Leu Tyr Ser Asp  
 85 90 95  
 Met Ile Lys Arg Glu Ile Gly Arg Lys Leu Ile Arg Leu Leu Ala Val  
 100 105 110  
 Ala Arg Tyr Ser Gln Ala Lys Ala Val Thr Ala Thr Phe Leu Ser Gly  
 115 120 125  
 Gln Gln Ala Gln Gly Trp Ser Phe Phe Ser Gly Met Phe Trp Glu Glu  
 130 135 140  
 Gly Asp Val Lys Thr Ser Glu Asp Leu Val Thr Asp Ala Cys Phe Ala  
 145 150 155 160  
 Ala Lys Leu Glu Gly Ala Leu Ala Ser Leu Cys Gln Lys Lys Asp Gln  
 165 170 175  
 Ala Ser Leu Gln Arg Val Ser Gln Leu Tyr Asn Asp Ser Arg Trp Gln  
 180 185 190  
 Asp Lys Leu Ala Ile Leu Glu Ser Val Ala Phe Ser Glu Asn Leu Asp  
 195 200 205  
 Ala Val Pro Phe Leu Leu Asp Cys Cys His His Glu Ala Pro Ser Leu  
 210 215 220  
 Arg Ser Ala Ala Ala Gly Ala Leu Phe Ser Ile Phe Lys  
 225 230 235

&lt;210&gt;526

&lt;211&gt;356

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;526

Arg Arg Thr Gly Gly Ile Ser Leu Thr Tyr Ser Ser Phe Arg Trp Ala  
 1 5 10 15  
 Ser Phe Arg Cys Tyr Ser Leu Ile Phe Phe Cys Phe Cys Gly Ser Leu  
 20 25 30  
 Phe Gly Ser Glu Ser Leu Arg Tyr Gln Leu Leu Ile Gln Asp Phe Ala  
 35 40 45  
 Lys Val Ser Glu Glu Gly Ile Gly Leu Leu Glu Ser Lys Glu Tyr Ser  
 50 55 60  
 Leu Leu Gln Ala Lys Leu Val Leu Arg Ala Leu Ala Gln Asn Ser Ser  
 65 70 75 80  
 Phe Asp Asp Trp Phe Arg Ser Phe Lys Lys Cys Gln Ile Ser Tyr Pro  
 85 90 95  
 Glu Leu Ala His Asp Arg Asp Val Leu Glu Glu Phe Gly Ile Gln Val  
 100 105 110  
 Leu Arg Glu Gly Ile Glu Asn Pro Ser Val Thr Val Arg Ala Val Ser  
 115 120 125  
 Val Leu Ala Ile Gly Leu Ala Arg Asp Phe Arg Leu Val Pro Leu Leu  
 130 135 140  
 Leu Gln Ser Cys Asn Asp Asp Ser Ala Ile Val Arg Ser Leu Ala Leu  
 145 150 155 160  
 Gln Val Ala Val Asn Tyr Gly Ser Glu Ser Leu Lys Lys Ala Ile Val  
 165 170 175  
 Glu Leu Ala Arg Asn Asp Asp Ser Ile His Val Arg Ile Thr Ala Tyr  
 180 185 190  
 Gln Val Val Ala Leu Leu Gln Ile Glu Glu Leu Leu Pro Phe Leu Arg  
 195 200 205  
 Glu Arg Ala Glu Asn Lys Leu Val Asp Ser Val Glu Arg Arg Glu Ala  
 210 215 220  
 Trp Lys Ala Cys Leu Glu Leu Ser Ser Gln Phe Leu Glu Thr Gly Val  
 225 230 235 240  
 Ala Lys Asp Asp Ile Asp Gln Ala Leu Phe Thr Cys Glu Val Leu Arg  
 245 250 255  
 Asn Gly Met Leu Pro Glu Thr Thr Glu Ile Phe Thr Glu Leu Leu Ser  
 260 265 270  
 Val Glu His Pro Glu Val Gln Glu Ser Leu Leu Leu Ser Ala Leu Ala  
 275 280 285  
 Trp Ser His Gln Leu Gln Asn His Lys Glu Phe Leu Ser Lys Val Arg  
 290 295 300  
 His Val Met Cys Thr Ser Pro Phe Ala Lys Val Arg Phe Gln Ala Ala  
 305 310 315 320  
 Ala Leu Leu His Leu His Gly Asp Pro Leu Gly Arg Asp Ser Leu Val  
 325 330 335  
 Glu Gly Cys Ala Leu Leu Asn Leu Leu Cys Val Arg Gln Leu Arg Arg  
 340 345 350  
 Leu Ser Ala Leu  
 355

&lt;210&gt;527

&lt;211&gt;110

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;527

Met Thr Val Phe Lys Gln Ile Ile Asp Gly Leu Ile Asp Cys Glu Lys  
 1 5 10 15  
 Val Phe Glu Asn Glu Asn Phe Ile Ala Ile Lys Asp Arg Phe Pro Gln  
 20 25 30  
 Ala Pro Val His Leu Leu Ile Ile Pro Lys Lys Pro Ile Pro Arg Phe  
 35 40 45  
 Gln Asp Ile Pro Gly Asp Glu Met Ile Leu Met Ala Glu Ala Gly Lys  
 50 55 60  
 Ile Val Gln Glu Leu Ala Ala Glu Phe Gly Ile Ala Asp Gly Tyr Arg  
 65 70 75 80  
 Val Val Ile Asn Asn Gly Ala Glu Gly Gly Gln Ala Val Phe His Leu

260 265 270  
 Lys Gly Leu Phe Leu Ser Val Trp Thr Asn Arg Glu Ser Cys Gln Arg  
 275 280 285  
 Ala Leu Arg Leu Thr Leu Gln Asp Arg Gly Ile Ile  
 290 295 300  
 <210>530  
 <211>154  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>530  
 Ile Met Tyr Asn Leu Leu His Ala His His Asp Ala Ala Ser Pro Asp  
 1 5 10 15  
 Gly Arg Leu Val Ser His Leu Lys Lys Leu Ser Pro His Ile Tyr Glu  
 20 25 30  
 Gly Glu Val Leu Ile Glu Asn Ile Pro Ala Tyr Phe Leu Gly Phe His  
 35 40 45  
 Leu Pro Gln Gln Cys Ile Gln Val Asn Leu Lys Ser Ser Leu Ala Gln  
 50 55 60  
 Leu Gly Val Glu Ala Val Leu Asn His Leu Glu Leu Asn Lys Ala Arg  
 65 70 75 80  
 Lys Glu Ala Arg Leu His Val Leu Phe Met Ser Gln Asp Pro Ile Ala  
 85 90 95  
 Thr Ala Asn Val Gly Ala Pro Arg Ser Leu Xaa Val Leu Ser Ala Ser  
 100 105 110  
 Ser Leu Leu Leu Met Ile Ala Asp Ser Tyr Val Arg Leu Val Ile Ser  
 115 120 125  
 Thr Gly Cys Leu Arg Thr Gln Thr Val Gln Asp Leu Arg Ser Tyr Ala  
 130 135 140  
 Leu Gly Lys Asn Leu Ser Thr Ser Ser Leu  
 145 150  
 <210>531  
 <211>230  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>531  
 Glu Pro Gly Ser Phe Val Cys Lys Leu Phe Ala Ala Asp Asp Arg Arg  
 1 5 10 15  
 Leu Val Arg Ser Pro Cys Tyr Leu Asn Arg Met Phe Thr His Thr Asp  
 20 25 30  
 Arg Thr Gly Ser Pro Leu Leu Arg Phe Gly Lys Lys Leu Glu His Phe  
 35 40 45  
 Ile Thr Leu Glu Ile Ile Asn Asp Arg Leu Val Val Phe Leu Pro Ile  
 50 55 60  
 Leu Pro Gly Thr Ile Cys Tyr Glu Glu Thr Ile Tyr Gly Phe Leu Pro  
 65 70 75 80  
 Leu Met Ser Lys Ser Leu Thr Arg Pro His Leu Lys Ile Arg Lys Phe  
 85 90 95  
 Leu Pro Leu Tyr Gln Met Val Thr Asp Arg Pro Pro Val Pro Glu Asp  
 100 105 110  
 His Lys Ile Leu Leu Ile Lys Thr Glu Pro Leu His Ile Arg Thr Val  
 115 120 125  
 Phe Ala Arg Val Val Gln Asp Leu Leu Pro Gln Gly Leu Arg His Thr  
 130 135 140  
 Ala Ala Asp Ile Leu Glu Pro Thr Thr Gln Glu Ser Gly Asp Ile Tyr  
 145 150 155 160  
 Glu Phe Tyr Gly Ser Thr Ser Glu Pro Ile Glu Arg Ile Pro Leu Glu  
 165 170 175  
 Phe Phe Thr Leu Glu Pro Tyr Lys Glu His Ser Phe Phe Phe Tyr Arg  
 180 185 190  
 Asp Met Leu Gln Glu Thr Leu Xaa Ser Pro Gln Glu Val Phe Arg Val  
 195 200 205  
 Phe Glu Ser Ile Pro Glu Gly Glu Asn Gln Ala Ala Met Phe Ile Ser  
 210 215 220  
 Lys Gly Ser Glu Leu Ala

85 90 95  
 His Ile His Leu Leu Gly Gly Arg Pro Leu Gly Ala Ile Ala  
 100 105 110  
 <210>528  
 <211>130  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>528  
 Asn His Leu Ile Pro Trp Asp Ile Leu Lys Ser Trp Tyr Arg Phe Phe  
 1 5 10 15  
 Arg Asn Asp Lys Lys Met Asn Arg Ser Leu Arg Lys Thr Ile Phe Tyr  
 20 25 30  
 Ser Tyr Glu Ile Phe Val Phe Lys Tyr Leu Phe Thr Ile Tyr Gln Ser  
 35 40 45  
 Ile Asp Asn Leu Phe Glu Tyr Cys His Met Ile Pro Arg Ser Cys Asn  
 50 55 60  
 Val Asn Arg Lys Ala Arg Trp Gln Leu Ser Leu Phe Val His Thr Glu  
 65 70 75 80  
 Arg Lys Arg Pro Leu Trp Gln Asn Thr Ala Pro Gly Ile Pro Asp Thr  
 85 90 95  
 Leu Asp Asn Ser Leu Pro Asn Lys Pro Ala Gln Phe Ser Gly Lys Gly  
 100 105 110  
 Thr Arg Thr Ser Ile Arg Arg Ser Lys Phe Gly Gly Ile Pro Arg Lys  
 115 120 125  
 Ile His  
 130  
 <210>529  
 <211>300  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>529  
 Met Glu Asp Trp Leu Arg Arg Ile Val Gly Met Gln Ile Pro Arg Ser  
 1 5 10 15  
 Ile Gly Thr His Asp Gly Ser Phe His Ala Asp Glu Val Thr Ala Cys  
 20 25 30  
 Ala Leu Leu Ile Ile Phe Asp Leu Val Asp Glu Asn Lys Ile Ile Arg  
 35 40 45  
 Ser Arg Asp Pro Val Val Leu Ser Lys Cys Glu Tyr Val Cys Asp Val  
 50 55 60  
 Gly Gly Val Tyr Ser Ile Glu Asn Lys Arg Phe Asp His His Gln Val  
 65 70 75 80  
 Ser Tyr Asp Gly Ser Trp Ser Ser Ala Gly Met Ile Leu His Tyr Leu  
 85 90 95  
 Lys Glu Phe Gly Tyr Met Asp Cys Glu Glu Tyr His Phe Leu Asn Asn  
 100 105 110  
 Thr Leu Val His Gly Val Asp Glu Gln Asp Asn Gly Arg Phe Phe Ser  
 115 120 125  
 Lys Glu Gly Phe Cys Ser Phe Ser Asp Ile Ile Lys Ile Tyr Asn Pro  
 130 135 140  
 Arg Glu Glu Glu Glu Thr Asn Ser Asp Ala Asp Phe Ser Cys Ala Leu  
 145 150 155 160  
 His Phe Thr Ile Asp Phe Leu Cys Arg Leu Arg Lys Lys Phe Gln Tyr  
 165 170 175  
 Asp Arg Val Cys Arg Gly Ile Val Arg Glu Ala Met Glu Thr Glu Asp  
 180 185 190  
 Met Cys Leu Tyr Phe Asp Arg Pro Leu Ala Trp Gln Glu Asn Phe Phe  
 195 200 205  
 Phe Leu Gly Gly Glu Lys His Pro Ala Ala Phe Val Cys Phe Pro Ser  
 210 215 220  
 Cys Asp Gln Trp Ile Leu Arg Gly Ile Pro Pro Asn Leu Asp Arg Arg  
 225 230 235 240  
 Met Glu Val Arg Val Pro Phe Pro Glu Asn Trp Ala Gly Leu Leu Gly  
 245 250 255  
 Lys Glu Leu Ser Lys Val Ser Gly Ile Pro Gly Ala Val Phe Cys His



225 230  
 <210>532  
 <211>356  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>532  
 Ala Cys Leu Ser Ser Pro Lys Thr Leu Gly Ser Ser Asn Leu Glu Ser  
 1 5 10 15  
 Pro His Gln Met Lys Asp Met Leu Gly Lys Phe Lys Ser Thr Leu Lys  
 20 25 30  
 Thr Gln Pro Cys Phe Pro Phe Leu Lys Ala Met Glu Thr Asp His Ile  
 35 40 45  
 Thr Ser Gln Gly Val Leu Phe Ser Arg Tyr Phe Pro Ser Ala Ser Leu  
 50 55 60  
 Lys Gly Met Phe Leu Ser Asn Tyr Ser Arg Tyr Tyr Leu Gln His Ile  
 65 70 75 80  
 Tyr Phe Gln Ile Pro Ser Pro Thr Ser Gly Glu Phe Phe Ser Asn Arg  
 85 90 95  
 Asp Arg Ser Phe Leu Leu Asp Leu Tyr Phe Ala Gly Ile Ser Val Phe  
 100 105 110  
 Trp Ala Asp Leu Glu Ser Lys Arg Leu Leu Gln Tyr Ile Lys Arg Arg  
 115 120 125  
 Asn Lys Asp Val Gly Met Phe Val Pro Lys His Gln Ala Glu Gln Phe  
 130 135 140  
 Ala Gln Ser Tyr Phe Ile Gly Ile His Gly Ser Cys Leu Ile Ala Gly  
 145 150 155 160  
 Asp Tyr Asp Glu Phe Leu Arg Glu Leu Leu Thr Gly Met His Thr Leu  
 165 170 175  
 Ser Gln Gln Phe Thr Ile Pro Glu Phe Pro Pro Gln Thr Pro Leu Ala  
 180 185 190  
 Ile Leu Thr Gly Gly Gly Ser Gly Ala Met Glu Leu Ala Asn Arg Val  
 195 200 205  
 Ala Thr Glu Leu Ser Ile Leu Ser Cys Gly Asn Leu Ile Ser Leu Asp  
 210 215 220  
 Thr Thr Asn Ala Tyr Val Glu Ala Lys Met Ser Tyr Ala Ile Pro Asp  
 225 230 235 240  
 Leu Leu Glu Arg Gln Ala Asp Phe His Val Asp Leu Ala Val Phe Val  
 245 250 255  
 Ile Gly Gly Met Gly Thr Asp Phe Glu Leu Leu Glu Leu Ile Ser  
 260 265 270  
 Leu Lys Thr Gly Lys Lys Ala Leu Val Pro Val Phe Leu Ile Gly Pro  
 275 280 285  
 Val Asp Tyr Trp Lys Ser Lys Ile Thr Ala Leu Tyr Asn Ser Asn His  
 290 295 300  
 Ala Val Gly Thr Ile Arg Gly Ser Glu Trp Val His Asn Cys Leu Phe  
 305 310 315 320  
 Cys Leu Ser Ser Ala Lys Ala Gly Ile Ala Ile Phe Arg Arg Tyr Leu  
 325 330 335  
 Asn His Thr Leu Pro Ile Gly Pro Glu His Pro Val Pro Glu Asp Gly  
 340 345 350  
 Phe Val Ile Val  
 355  
 <210>533  
 <211>420  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>533  
 Ile Leu Ser Ser Leu Tyr Thr Val Phe Thr Met Lys Thr Ala Phe His  
 1 5 10 15  
 Ser Cys Tyr Ser Trp Phe Cys Trp Leu Phe Ser Phe Leu Val Leu Phe  
 20 25 30  
 Val Gly Gly Ile Ala Gly Gly Glu Pro Leu Cys Pro Asp Cys Lys Tyr  
 35 40 45  
 Glu Thr Lys Ser Val Leu Arg Ser Asp Gln Leu Pro Asp His Leu Trp

50 55 60  
 Asn Tyr Glu Asn Asp Cys Tyr Leu Thr Gly Tyr Val Gln Ser Leu Leu  
 65 70 75 80  
 Asp Met His Phe Leu Asp Ser Arg Thr Gln Val Val Ile Glu Lys Asn  
 85 90 95  
 Arg Ala Tyr Leu Phe Ser Leu Pro Val Asp Ser Ser Leu Ser Glu Ala  
 100 105 110  
 Ile Thr Asn Phe Val Arg Asp Leu Pro Phe Ile Cys Ala Val Glu Ile  
 115 120 125  
 Cys Glu Arg Pro Tyr Gly Glu Cys Ile Thr Arg Ser Ser Ala Glu Arg  
 130 135 140  
 Pro Leu Leu Pro Lys Glu Lys Thr Leu Gly Met Pro Ile Phe Cys Gly  
 145 150 155 160  
 Lys Glu Gly Val Trp Leu Pro Gln Asn Thr Ile Leu Phe Ser Pro Leu  
 165 170 175  
 Ile Ala Asp Pro Arg Gln Val Thr Asn Ser Ala Gly Ile Arg Phe Asn  
 180 185 190  
 Glu Lys Val Val Gly Asn Arg Val Gly Ala Thr Ile Phe Gly Gly Asp  
 195 200 205  
 Phe Ile Leu Leu Arg Leu Phe Asp Val Ser Arg Phe His Val Asp Cys  
 210 215 220  
 Asp Phe Gly Ile Gln Gly Gly Val Phe Ser Val Phe Asp Leu Asp His  
 225 230 235 240  
 Pro Glu Ser Cys Met Val Asn Ser Asp Phe Phe Val Ala Gly Leu Trp  
 245 250 255  
 Ser Gly Ala Ile Asp Lys Trp Ser Phe Arg Phe Arg Leu Trp His Leu  
 260 265 270  
 Ser Ser His Leu Gly Asp Glu Phe Ile Leu Thr His Pro Asn Phe Pro  
 275 280 285  
 Arg Phe Asn Leu Ser Asp Glu Gly Val Asp Leu Phe Ile Ser Phe Arg  
 290 295 300  
 Tyr Thr Pro Gln Ile Arg Leu Tyr Gly Gly Cys Gly Tyr Ile Val Ser  
 305 310 315 320  
 Arg Asp Leu Thr Phe Pro Glu Arg Pro Phe Tyr Cys Glu Trp Gly Ala  
 325 330 335  
 Glu Leu Arg Pro Phe Gly Leu Arg Glu Gly Asn Leu His Ala Gln Pro  
 340 345 350  
 Ile Phe Ala Met His Phe Arg Cys Trp Glu Glu Gln Lys Phe Gly Leu  
 355 360 365  
 Asp Gln Ser Tyr Ile Leu Gly Met Glu Trp Ala Lys Phe Gln Glu Ile  
 370 375 380  
 Gly Arg Lys Ile Arg Ala Val Leu Glu Tyr His Gln Gly Phe Ser Lys  
 385 390 395 400  
 Glu Gly Gln Phe Ile Arg Glu Pro Cys Asn Tyr Tyr Gly Phe Arg Leu  
 405 410 415  
 Thr Tyr Gly Phe  
 420

&lt;210&gt;534

&lt;211&gt;96

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;534

Ser Lys Thr Glu Gly Ser His Ser Lys Thr Ser Lys Gly Phe Val Gly  
 1 5 10 15  
 Arg Phe Val Gln Trp Ile Arg Thr Phe Thr Gly Arg Gly Ser Lys Lys  
 20 25 30  
 Arg Ser Pro Ser Ser Phe Ser Pro Thr His Pro Tyr Ile Arg Leu Arg  
 35 40 45  
 Thr Tyr Thr Arg Ser Pro Lys Gln Ser Gly Val Glu Arg Lys Gln Glu  
 50 55 60  
 Asp Ala Glu Thr Ser Phe Ile Glu Thr Pro Lys Gly Ile Leu Lys Lys  
 65 70 75 80  
 Pro Gly Asn Lys Asp Pro Lys Gly Lys His Val His Trp Lys Asp Ser  
 85 90 95

&lt;210&gt;535

&lt;211&gt;421

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;535

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Met Ala Ile Gln Lys Ala Gly Ala Phe Leu Arg Cys Leu Pro Ser Glu
  1           5           10           15
Ser Arg Pro Tyr Leu Glu His Ala Met Arg Arg Asn Pro His Phe Ser
          20           25           30
Leu Leu Lys Pro Gln Tyr Leu Phe Ser Glu Ile Ser Lys Lys Leu Ala
          35           40           45
Gln Phe Arg Lys Glu Asn Pro Glu Ile Ser Val Ile Asp Leu Ser Ile
          50           55           60
Gly Asp Thr Thr Gln Pro Leu Cys Arg Ser Ile Thr Gln Ala Ile Lys
          65           70           75           80
Glu Phe Cys Val Ser Gln Glu Lys Gln Glu Thr Tyr Arg Gly Tyr Gly
          85           90           95
Pro Glu Thr Gly Leu Glu Lys Leu Arg Thr Lys Ile Ala Ser Glu Val
          100          105          110
Tyr Glu Asn Arg Ile Ser Pro Glu Glu Ile Phe Ile Ser Asp Gly Ala
          115          120          125
Lys Pro Asp Ile Phe Arg Leu Phe Ser Phe Phe Gly Ser Glu Lys Thr
          130          135          140
Leu Gly Leu Gln Asp Pro Val Tyr Pro Ala Tyr Arg Asp Ile Ala His
          145          150          155          160
Ile Thr Gly Ile Arg Asp Ile Ile Pro Leu Ala Cys Arg Lys Glu Thr
          165          170          175
Gly Phe Ile Pro Glu Leu Pro Asn Gln Gln Ser Leu Asp Ile Leu Cys
          180          185          190
Leu Cys Tyr Pro Asn Asn Pro Thr Gly Thr Val Leu Thr Phe Gln Gln
          195          200          205
Leu Gln Ala Leu Val Asn Tyr Ala Asn Gln His Gly Thr Val Leu Ile
          210          215          220
Phe Asp Ala Ala Tyr Ser Ala Phe Val Ser Asp Pro Ser Leu Pro Lys
          225          230          235          240
Ser Ile Phe Glu Ile Pro Glu Ala Lys Tyr Cys Ala Ile Glu Ile Asn
          245          250          255
Ser Phe Ser Lys Ser Leu Gly Phe Thr Gly Met Arg Leu Ala Trp Asn
          260          265          270
Val Ile Pro Lys Glu Leu Thr Tyr Asp Asn Asn Glu Pro Met Ile Asn
          275          280          285
Asp Trp Lys Arg Leu Phe Ala Thr Thr Phe Asn Gly Ala Ser Leu Leu
          290          295          300
Met Gln Glu Ala Gly Tyr Tyr Gly Leu Asp Leu Phe Pro Thr Pro Pro
          305          310          315          320
Ala Ile Ser Leu Tyr Leu Thr Asn Ala Gln Lys Leu Lys Lys Ser Leu
          325          330          335
Glu Thr Ala Gly Phe Ser Val His Gly Gly Asp His Ala Pro Tyr Leu
          340          345          350
Trp Val Glu Leu Pro Glu Gly Ile Ser Asp Glu Glu Ala Phe Asp Phe
          355          360          365
Phe Leu His Gln Tyr His Ile Ala Val Thr Pro Gly His Gly Phe Gly
          370          375          380
Ser Cys Gly Gln Gly Phe Val Arg Phe Ser Ala Leu Thr Gln Pro Gln
          385          390          395          400
Asn Ile Ala Leu Ala Cys Asp Arg Leu Cys Thr Ala Ser Leu Lys Glu
          405          410          415
Thr Met Val Leu Ala
          420

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&lt;210&gt;536

&lt;211&gt;354

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;536

Pro Pro Leu Tyr Arg Phe Thr Lys Arg Asn Asp Gly Ser Cys Met Thr  
 1 5 10 15  
 Ile Leu Arg Lys Leu Ser Gln Tyr Leu Phe Phe Phe Ser Leu Phe Cys  
 20 25 30  
 Ser Phe Ile Tyr Val Ala Thr Cys Gly Ser Gln Pro Asp Ser Val Ser  
 35 40 45  
 Ser Pro Lys Ile Ala Ile Phe Leu Ser Phe Pro His Pro Leu Leu Glu  
 50 55 60  
 Asp Cys Ser Lys Ser Cys Ile Glu Thr Leu Lys Asp Phe Glu Asn Leu  
 65 70 75 80  
 Pro Glu Ile Val Val Leu Asn Ala Glu Asp Ser Ile Val Lys Ala Arg  
 85 90 95  
 Lys Ile Ala Arg Ser Leu His Thr Asp Lys Asn Val Val Ala Ile Val  
 100 105 110  
 Thr Leu Gly Thr Ile Ala Thr Lys Val Met Ser His Ile Glu Thr Gln  
 115 120 125  
 Lys Pro Val Ile Tyr Ala Ala Val Pro Asp Arg Glu Ser Leu Thr Pro  
 130 135 140  
 Pro Lys Asn Thr Met Asn Ile Tyr Gly Val Asn Asp Thr Leu Asp Ile  
 145 150 155 160  
 Asn Gln Tyr Cys Phe Ala Ile Gln Ala Val Ala Thr Asn Ala Gln Ser  
 165 170 175  
 Ile Val Tyr Leu Lys Pro Ser Glu Pro Phe Pro Ser Asp Leu Gln Lys  
 180 185 190  
 Glu Ile Val Lys Lys Leu His Ala Ser Gly Ile Glu Val Ile Glu Ile  
 195 200 205  
 Ser Ile Thr Ser Ser Thr Phe Lys Thr Arg Ile Arg Gln Ala Ile Asp  
 210 215 220  
 Lys Arg Pro Ser Ala Ile Phe Ile Pro Leu Ser Pro Leu Ser His Lys  
 225 230 235 240  
 Glu Gly Thr Ala Phe Leu Gln Glu Ile Leu Lys Glu Lys Ile Pro Ile  
 245 250 255  
 Ile Thr Asp Asp Thr Ser Leu Ile Ser Glu Glu Pro Ala Leu Pro Val  
 260 265 270  
 Ala Trp Ile Thr Lys Asn Gln Glu Asn Lys Ser Gln Lys Ile Val His  
 275 280 285  
 His Leu Leu Tyr Asn Asn His Asp Val Asp Ser Leu Arg Lys Ile Ile  
 290 295 300  
 Ala Gln Arg Leu Ser Pro Thr Thr Thr Phe Asn Glu Asp Ile Ile Lys  
 305 310 315 320  
 Tyr Leu Gly Ile Lys Leu His Lys Thr Glu Arg Asn Gln Phe Leu Ser  
 325 330 335  
 Phe Lys Ser Lys Lys Leu Glu Lys Ser Glu Lys Gly Lys Asn Val Ala  
 340 345 350  
 Val Ser

&lt;210&gt;537

&lt;211&gt;290

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;537

Gln Ala Lys Ser Arg Cys Ser Ile Asp Lys Tyr Ile Pro Val Val Asn  
 1 5 10 15  
 Arg Leu Leu Glu Val Cys Gly Leu Pro Glu Ala Glu Asn Val Glu Asp  
 20 25 30  
 Leu Ile Glu Ser Ser Ser Ala Trp Val Leu Thr Pro Glu Glu Arg Phe  
 35 40 45  
 Ser Gly Glu Leu Val Ser Ile Cys Gln Val Lys Asp Glu His Ala Phe  
 50 55 60  
 Tyr Asn Asp Leu Ser Leu Leu His Met Thr Gln Ala Val Pro Ser Tyr  
 65 70 75 80  
 Ser Ala Thr Tyr Asp Cys Ala Val Val Phe Gly Gly Pro Leu Pro Ala  
 85 90 95  
 Leu Arg Gln Arg Leu Asp Phe Leu Val Arg Glu Trp Gln Arg Gly Val

100 105 110  
 Arg Phe Lys Lys Ile Val Phe Leu Cys Gly Glu Arg Gly Arg Tyr Gln  
 115 120 125  
 Ser Ile Glu Glu Gln Glu His Phe Phe Asp Ser Arg Tyr Asn Pro Phe  
 130 135 140  
 Pro Thr Glu Glu Asn Trp Glu Ser Gly Asn Arg Val Thr Pro Ser Ser  
 145 150 155 160  
 Glu Glu Glu Val Ala Lys Phe Val Trp Met Gln Met Leu Leu Pro Arg  
 165 170 175  
 Ala Trp Arg Asp Ser Thr Ser Gly Val Arg Val Thr Phe Leu Leu Ala  
 180 185 190  
 Lys Pro Glu Glu Asn Arg Val Val Ala Asn Arg Lys Asp Thr Leu Leu  
 195 200 205  
 Leu Phe Arg Ser Tyr Gln Glu Ala Phe Pro Gly Arg Val Leu Phe Val  
 210 215 220  
 Ser Ser Gln Pro Phe Ile Gly Leu Asp Ala Cys Arg Val Gly Gln Phe  
 225 230 235 240  
 Phe Lys Gly Glu Ser Tyr Asp Leu Ala Gly Pro Gly Phe Ala Gln Gly  
 245 250 255  
 Val Leu Lys Tyr His Trp Ala Pro Arg Ile Cys Leu His Thr Leu Ala  
 260 265 270  
 Glu Trp Leu Lys Glu Thr Asn Gly Cys Leu Asn Ile Ser Glu Gly Cys  
 275 280 285  
 Phe Gly  
 290  
 <210>538  
 <211>400  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>538  
 Leu Ser Val Tyr Leu Leu Ile Phe Tyr Phe Cys Asn Cys Ser Thr Met  
 1 5 10 15  
 Ser Ser Val Asn Gln Ser Ser Gly Thr Pro Asn Pro Glu Glu Val Thr  
 20 25 30  
 Ser Pro Glu Ser Thr Glu Glu Asn Lys Asn Val Val Ser Ser Asp Glu  
 35 40 45  
 Ala Gln Ala Thr His Ala Val Ala Leu Pro Ile Val Thr Gln Leu Ser  
 50 55 60  
 Leu Pro Glu Gly Val Gly Thr Ser Ser Glu Glu Thr Ala Ser Asn Pro  
 65 70 75 80  
 Lys Val Asp Glu Ile Val Ala Glu Val Ser Ser Ser Arg Ala Val Ala  
 85 90 95  
 Asp Gln Ile Ser Ser Leu Val Glu Arg Val Gly Glu Leu Leu Asp Asp  
 100 105 110  
 Leu Lys Gly Ala Gln Ser Leu Phe Thr Ser Phe Gln Ser Glu Leu Lys  
 115 120 125  
 Asn Cys Leu Pro Ala Trp Lys Ser Ser Thr Arg Arg Leu Glu Thr Arg  
 130 135 140  
 Gly Ala Gly Asp Asn Ala Asp Ile Ala Arg Leu Glu Leu Phe Arg Ser  
 145 150 155 160  
 Asp Tyr Glu Ala Val Leu Gly His Ala Asn Gln Phe His Gly Lys Ala  
 165 170 175  
 His Leu Ile Leu Ser Lys Leu Thr Asp Val His His Lys Leu Gln Gly  
 180 185 190  
 Leu Ser Arg Glu Asp Leu Ser Leu Ala Phe Asp Asn Asn Asp Arg Val  
 195 200 205  
 Leu Glu His Leu Gly Ser Leu Gly Leu Asp Val Asp Ala Glu Gly Asn  
 210 215 220  
 Trp Ser Leu Ser Cys Glu Arg Gly Ile Pro Arg Leu Val Leu Thr Ala  
 225 230 235 240  
 Asp Ser Met Leu Val Gln Ile Lys Lys Val Asn Leu Pro Thr Val Glu  
 245 250 255  
 Glu Leu Arg Thr Leu Gln Gly Thr Thr Glu Ser Ser Ser Asp Pro Arg  
 260 265 270

Val Glu Glu Ser Leu Ser Cys Cys Glu Arg Leu Leu Asn Glu Leu Arg  
 275 280 285  
 Arg Leu Trp Ala Asn Phe Val Gly Phe Ile Ser Ser Cys Tyr Asp Asn  
 290 295 300  
 Ile Val Phe Val Leu Met Trp Ile Val Arg Arg Ile Asn Leu Leu Pro  
 305 310 315 320  
 Gly Leu Gly Cys Leu Pro Phe His Asn Pro Asp Ala Ser Gln Glu Asp  
 325 330 335  
 Gln Arg Ser Ser Ser Gly Glu Arg Ser Thr Arg Arg Glu Arg Leu Ser  
 340 345 350  
 Arg Arg Ser Asp Leu Ser Glu Glu Glu Met Ile Val Arg Ala Glu Gly  
 355 360 365  
 Glu Ser Ile His Pro Glu Ser Pro His Gly Asp Gly Arg Asn Gln Pro  
 370 375 380  
 Ser Arg Gly Asp Lys Gln Asp Ser Asp Ser Glu Glu Glu Thr Glu Leu  
 385 390 395 400

&lt;210&gt;539

&lt;211&gt;568

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;539

Met Lys Thr Ser Gln Leu Phe Tyr Lys Thr Ser Lys Asn Ala Asn Lys  
 1 5 10 15  
 Ser Ala Ala Val Leu Ser Asn Glu Leu Leu Glu Lys Ala Gly Tyr Leu  
 20 25 30  
 Phe Lys Val Ser Lys Gly Val Tyr Thr Tyr Thr Pro Leu Leu Trp Arg  
 35 40 45  
 Val Val Ser Lys Met Met Asn Ile Ile Arg Glu Glu Leu Asn Ala Ile  
 50 55 60  
 Gly Gly Gln Glu Leu Leu Leu Pro Leu Leu His Asn Ala Glu Leu Trp  
 65 70 75 80  
 Gln His Thr Gly Arg Trp Glu Ala Phe Thr Ser Glu Gly Leu Leu Tyr  
 85 90 95  
 Thr Leu Lys Asp Arg Glu Gly Lys Ser His Cys Leu Ala Pro Thr His  
 100 105 110  
 Glu Glu Val Ile Cys Ser Phe Val Ala Gln Trp Leu Ser Ser Lys Arg  
 115 120 125  
 Gln Leu Pro Leu His Leu Tyr Gln Ile Ala Thr Lys Phe Arg Asp Glu  
 130 135 140  
 Ile Arg Pro Arg Phe Gly Leu Ile Arg Ser Arg Glu Leu Leu Met Glu  
 145 150 155 160  
 Asp Ser Tyr Thr Phe Ser Asp Ser Pro Glu Gln Met Asn Glu Gln Tyr  
 165 170 175  
 Glu Lys Leu Arg Ser Ala Tyr Ser Lys Ile Phe Asp Arg Leu Gly Leu  
 180 185 190  
 Ala Tyr Val Ile Val Thr Ala Asp Gly Gly Lys Ile Gly Lys Gly Lys  
 195 200 205  
 Ser Glu Glu Phe Gln Val Leu Cys Ser Leu Gly Glu Asp Thr Ile Cys  
 210 215 220  
 Val Ser Gly Ser Tyr Gly Ala Asn Ile Glu Ala Ala Val Ser Ile Pro  
 225 230 235 240  
 Pro Gln His Ala Tyr Asp Arg Glu Phe Leu Pro Val Glu Glu Val Ala  
 245 250 255  
 Thr Pro Gly Ile Thr Thr Ile Glu Ala Leu Ala Asn Phe Phe Ser Ile  
 260 265 270  
 Pro Leu His Lys Ile Leu Lys Thr Leu Val Val Lys Leu Ser Tyr Ser  
 275 280 285  
 Asn Glu Glu Lys Phe Ile Ala Ile Gly Met Arg Gly Asp Arg Gln Val  
 290 295 300  
 Asn Leu Val Lys Val Ala Ser Lys Leu Asn Ala Asp Asp Ile Ala Leu  
 305 310 315 320  
 Ala Ser Asp Glu Glu Ile Glu Arg Val Leu Gly Thr Glu Lys Gly Phe  
 325 330 335  
 Ile Gly Pro Leu Asn Cys Pro Ile Asp Phe Xaa Ala Asp Glu Thr Thr

340 345 350  
 Ser Pro Met Thr Asn Phe Val Cys Ala Gly Asn Ala Lys Asp Lys His  
 355 360 365  
 Tyr Val Asn Val Asn Trp Asp Arg Asp Leu Leu Pro Pro Gln Tyr Gly  
 370 375 380  
 Asp Phe Leu Leu Ala Glu Glu Gly Asp Thr Cys Pro Glu Asn Pro Gly  
 385 390 395 400  
 His Pro Tyr Arg Ile Tyr Gln Gly Ile Glu Val Ala His Ile Phe Asn  
 405 410 415  
 Leu Gly Thr Arg Tyr Thr Asp Ser Phe Glu Val Asn Phe Gln Asp Glu  
 420 425 430  
 His Gly Gln Thr Gln Gln Cys Trp Met Gly Thr Tyr Gly Ile Gly Val  
 435 440 445  
 Gly Arg Thr Leu Ala Ala Cys Val Glu Gln Leu Ala Asp Asp Arg Gly  
 450 455 460  
 Ile Val Trp Pro Lys Ala Leu Ala Pro Phe Ser Ile Thr Ile Ala Phe  
 465 470 475 480  
 Asn Gly Gly Asp Thr Val Ser Gln Glu Leu Ala Glu Thr Ile Tyr His  
 485 490 495  
 Glu Leu Gln Ser Gln Gly Tyr Glu Pro Leu Leu Asp Asp Arg Asp Glu  
 500 505 510  
 Arg Leu Gly Phe Lys Leu Lys Asp Ser Asp Leu Ile Gly Ile Pro Tyr  
 515 520 525  
 Lys Leu Ile Leu Gly Lys Ser Tyr Gln Ser Ser Gly Ile Phe Glu Ile  
 530 535 540  
 Glu Ser Arg Ser Gly Glu Lys Tyr Thr Val Ser Pro Glu Ala Phe Pro  
 545 550 555 560  
 Thr Trp Cys Gln Asn His Leu Ala  
 565

&lt;210&gt;540

&lt;211&gt;126

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;540

Leu Thr Phe Ser Gly Ser Phe Pro Ile Met Leu Ser Val Thr Ile Val  
 1 5 10 15  
 Leu Val Gly Leu Glu Met Ala Arg Ser Lys Val Ser Lys Arg Asp Ser  
 20 25 30  
 Lys Ile Leu Asp Ile Leu Phe Ala Thr Thr Glu Leu Tyr Leu Lys Thr  
 35 40 45  
 Gly Gln Pro Val Gly Ser Lys Thr Leu Lys Glu Ser Phe Cys Ser Asp  
 50 55 60  
 Leu Ser Thr Ala Thr Ile Arg Asn Tyr Phe Ala Glu Leu Glu Ala Glu  
 65 70 75 80  
 Gly Phe Leu Lys Xaa Asn His Thr Ser Gly Gly Arg Ile Pro Thr Asp  
 85 90 95  
 Leu Ala Leu Arg His Tyr Val Asp His Gln Glu Glu Cys Pro Glu Ala  
 100 105 110  
 Glu Ile Ser Ala Pro Ile Phe Asp Lys Xaa Ser Xaa Leu Pro  
 115 120 125

&lt;210&gt;541

&lt;211&gt;304

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;541

Ile Thr Lys Lys Asn Ala Gln Lys Leu Arg Phe Leu Pro Pro Phe Leu  
 1 5 10 15  
 Ile Xaa Ser Val Xaa Phe Pro Ser Glu Ser Arg Asn Ile Ile Lys Asp  
 20 25 30  
 Leu Gln Lys Ala Thr Glu Leu Leu Gly Glu Ile Leu Asp Leu Pro Thr  
 35 40 45  
 Phe Phe Ser Ser Pro Arg Phe Glu Asn Asp Ser Val Thr Asn Ile Gln  
 50 55 60  
 Ile Thr Gln Val Asp Lys Gln Arg Ala Val Thr Ile Leu Ser Thr Glu

```

65              70              75              80
Phe Gly Gln Ile Phe Thr Asp Thr Leu Trp Leu Pro Glu Ala Cys Asp
      85              90              95
Thr Leu Ser Ile Lys Arg Ile Glu Lys Phe Leu Gln Asn Tyr Ile Arg
      100            105            110
Lys Leu Pro Thr Asn Glu Glu Leu Ser Lys Lys Glu Glu His Leu Ser
      115            120            125
Met Ser Leu Tyr Asn Glu Val Val Arg Tyr Leu Thr Arg Tyr Cys
      130            135            140
Asn Phe Ser Glu Glu Asp Leu Tyr Gln Thr Gly Met Ser Lys Leu Leu
      145            150            155            160
Lys Tyr Glu Ala Phe Lys Asp Pro Glu Val Leu Ala Leu Gly Leu Ser
      165            170            175
Leu Phe Glu Asn Arg Arg Gln Met Cys Glu Leu Leu Asn Ile Gly Met
      180            185            190
His Lys Gly Arg Ala Thr Ala Phe Ile Gly Lys Glu Leu Ser Asp Ile
      195            200            205
Leu Gly Thr Ser Asn Pro Gly Cys Ser Val Ile Thr Ile Pro Tyr Tyr
      210            215            220
Met Asn Arg Ser Pro Leu Gly Ala Leu Gly Ile Leu Gly Pro Ile Asn
      225            230            235            240
Leu Pro Tyr Lys Glu Ala Leu Pro Leu Leu Lys Leu Phe Ala Asn Lys
      245            250            255
Ile Asn Glu Thr Leu Thr Gln Ser Phe Tyr Lys Phe Lys Leu Ser Phe
      260            265            270
Arg Arg Pro Leu Thr Ser Asn Cys Lys Leu Ser Asn Glu Pro Ile Leu
      275            280            285
Arg Thr Glu Tyr Ser Ser Ile Lys Leu Leu Pro Ser Lys Glu Thr Leu
      290            295            300

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&lt;210&gt;542

&lt;211&gt;184

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;542

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Met Thr Asp Thr Pro Pro Glu Asn Glu Glu Gln His Glu Ser Asn Val
  1              5              10              15
Gln Asn Glu Asn Glu Val Glu His Leu Gln Gln Glu Ile Val Thr Leu
      20            25            30
Lys Thr Glu Leu Lys Glu Lys Asn Asp Lys Tyr Leu Met Ala Leu Ala
      35            40            45
Glu Ser Glu Asn Ser Arg Lys Arg Leu Gln Lys Glu Arg Gln Glu Leu
      50            55            60
Met Gln Tyr Ala Leu Glu Asn Thr Leu Ile Asp Phe Leu Asn Pro Ile
      65            70            75            80
Glu Ser Met Glu Lys Ala Leu Gly Phe Ala Thr Gln Met Ser Asp Asp
      85            90            95
Val Lys Asn Trp Ala Leu Gly Phe Asn Met Ile Leu Asn Gln Phe Lys
      100            105            110
Gln Ile Phe Glu Glu Lys Gly Ile Ile Glu Tyr Ser Ser Ile Gly Gln
      115            120            125
Lys Phe Asn Pro Phe Leu His Glu Ala Val Gln Thr Glu Glu Thr Ser
      130            135            140
Glu Val Pro Glu Gly Thr Ile Leu Glu Glu Phe Ala Lys Gly Tyr Lys
      145            150            155            160
Ile Gly Glu Arg Pro Ile Arg Val Ala Lys Val Lys Val Ala Lys Ala
      165            170            175
Pro Thr Pro Lys Glu Asn Lys Glu
      180

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&lt;210&gt;543

&lt;211&gt;539

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;543

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Met Ser Glu His Lys Lys Ser Ser Lys Ile Ile Gly Ile Asp Leu Gly

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|   |     |     |     |
|---|-----|-----|-----|
| 1   | 5   | 10  | 15  |
| Thr Thr Asn Ser Cys Val Ser Val Met Glu Gly Gly Gln Ala Lys Val |     |     |     |
|   | 20  | 25  | 30  |
| Ile Thr Ser Ser Glu Gly Thr Arg Thr Thr Pro Ser Ile Val Ala Phe |     |     |     |
|   | 35  | 40  | 45  |
| Lys Gly Asn Glu Lys Leu Val Gly Ile Pro Ala Lys Arg Gln Ala Val |     |     |     |
|   | 50  | 55  | 60  |
| Thr Asn Pro Glu Lys Thr Leu Gly Ser Thr Lys Arg Phe Ile Gly Arg |     |     |     |
|   | 65  | 70  | 75  |
| Lys Tyr Ser Glu Val Ala Ser Glu Ile Gln Thr Val Pro Tyr Thr Val |     |     |     |
|   | 85  | 90  | 95  |
| Thr Ser Gly Ser Lys Gly Asp Ala Val Phe Glu Val Asp Gly Lys Gln |     |     |     |
|   | 100 | 105 | 110 |
| Tyr Thr Pro Glu Glu Ile Gly Ala Gln Ile Leu Met Lys Met Lys Glu |     |     |     |
|   | 115 | 120 | 125 |
| Thr Ala Glu Ala Tyr Leu Gly Glu Thr Val Thr Glu Ala Val Ile Thr |     |     |     |
|   | 130 | 135 | 140 |
| Val Pro Ala Tyr Phe Asn Asp Ser Gln Arg Ala Ser Thr Lys Asp Ala |     |     |     |
|   | 145 | 150 | 155 |
| Gly Arg Ile Ala Gly Leu Asp Val Lys Arg Ile Ile Pro Glu Pro Thr |     |     |     |
|   | 165 | 170 | 175 |
| Ala Ala Ala Leu Ala Tyr Gly Ile Asp Lys Val Gly Asp Lys Lys Ile |     |     |     |
|   | 180 | 185 | 190 |
| Ala Val Phe Asp Leu Gly Gly Gly Thr Phe Asp Ile Ser Ile Leu Glu |     |     |     |
|   | 195 | 200 | 205 |
| Ile Gly Asp Gly Val Phe Glu Val Leu Ser Thr Asn Gly Asp Thr Leu |     |     |     |
|   | 210 | 215 | 220 |
| Leu Gly Gly Asp Asp Phe Asp Glu Val Ile Ile Lys Trp Met Ile Glu |     |     |     |
|   | 225 | 230 | 235 |
| Glu Phe Lys Lys Gln Glu Gly Ile Asp Leu Ser Lys Asp Asn Met Ala |     |     |     |
|   | 245 | 250 | 255 |
| Leu Gln Arg Leu Lys Asp Ala Ala Glu Lys Ala Lys Ile Glu Leu Ser |     |     |     |
|   | 260 | 265 | 270 |
| Gly Val Ser Ser Thr Glu Ile Asn Gln Pro Phe Ile Thr Met Asp Ala |     |     |     |
|   | 275 | 280 | 285 |
| Gln Gly Pro Lys His Leu Ala Leu Thr Leu Thr Arg Ala Gln Phe Glu |     |     |     |
|   | 290 | 295 | 300 |
| Lys Leu Ala Ala Ser Leu Ile Glu Arg Thr Lys Ser Pro Cys Ile Lys |     |     |     |
|   | 305 | 310 | 315 |
| Ala Leu Ser Asp Ala Lys Leu Ser Ala Lys Asp Ile Asp Asp Val Leu |     |     |     |
|   | 325 | 330 | 335 |
| Leu Val Gly Gly Met Ser Arg Met Pro Ala Val Gln Glu Thr Val Lys |     |     |     |
|   | 340 | 345 | 350 |
| Glu Leu Phe Gly Lys Glu Pro Asn Lys Gly Val Asn Pro Asp Glu Val |     |     |     |
|   | 355 | 360 | 365 |
| Val Ala Ile Gly Ala Ala Ile Gln Gly Gly Val Leu Gly Gly Glu Val |     |     |     |
|   | 370 | 375 | 380 |
| Lys Asp Val Leu Leu Leu Asp Val Ile Pro Leu Ser Leu Gly Ile Glu |     |     |     |
|   | 385 | 390 | 395 |
| Thr Leu Gly Gly Val Met Thr Thr Leu Val Glu Arg Asn Thr Thr Ile |     |     |     |
|   | 405 | 410 | 415 |
| Pro Thr Gln Lys Lys Gln Ile Phe Ser Thr Ala Ala Asp Asn Gln Pro |     |     |     |
|   | 420 | 425 | 430 |
| Ala Val Thr Ile Val Val Leu Gln Gly Glu Arg Pro Met Ala Lys Asp |     |     |     |
|   | 435 | 440 | 445 |
| Asn Lys Glu Ile Gly Arg Phe Asp Leu Thr Asp Ile Pro Pro Ala Pro |     |     |     |
|   | 450 | 455 | 460 |
| Arg Gly His Pro Gln Ile Glu Val Ser Phe Asp Ile Asp Ala Asn Gly |     |     |     |
|   | 465 | 470 | 475 |
| Ile Phe His Val Ser Ala Lys Asp Val Ala Ser Gly Lys Glu Gln Lys |     |     |     |
|   | 485 | 490 | 495 |
| Ile Arg Ile Glu Ala Ser Ser Gly Leu Gln Glu Asp Glu Ile Gln Arg |     |     |     |
|   | 500 | 505 | 510 |
| Met Val Arg Asp Ala Glu Ile Asn Lys Glu Glu Asp Lys Asn Val Val |     |     |     |

515 520 525  
 Lys Leu Gln Met Leu Lys Met Lys Pro Ile Ala  
 530 535  
 <210>544  
 <211>135  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>544  
 Lys Arg Arg Glu Ala Ser Asp Ala Lys Asn Glu Ala Asp Ser Met Ile  
 1 5 10 15  
 Phe Arg Ala Glu Lys Ala Ile Lys Asp Tyr Lys Glu Gln Ile Pro Glu  
 20 25 30  
 Thr Leu Val Lys Glu Ile Glu Glu Arg Ile Glu Asn Val Arg Asn Ala  
 35 40 45  
 Leu Lys Asp Asp Ala Pro Ile Glu Lys Ile Lys Glu Val Thr Glu Asp  
 50 55 60  
 Leu Ser Lys His Met Gln Lys Ile Gly Glu Ser Met Gln Ser Gln Ser  
 65 70 75 80  
 Ala Ser Ala Ala Ala Ser Ser Ala Ala Asn Ala Lys Gly Gly Pro Asn  
 85 90 95  
 Ile Asn Thr Glu Asp Leu Lys Lys His Ser Phe Ser Thr Lys Pro Pro  
 100 105 110  
 Ser Asn Asn Gly Ser Ser Glu Asp His Ile Glu Glu Ala Asp Val Glu  
 115 120 125  
 Ile Ile Asp Asn Asp Asp Lys  
 130 135  
 <210>545  
 <211>234  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>545  
 Ala Thr Gln Phe Thr Ser Glu Thr Thr Gly Phe Leu Val Gln Cys Pro  
 1 5 10 15  
 Lys Leu Thr Gly Gly Ala Gln Leu Leu Lys Lys Pro Lys Arg Lys Pro  
 20 25 30  
 Gly Arg Arg Thr Tyr Gly Lys Ser Leu Lys Ile Phe Ile Pro Gly Thr  
 35 40 45  
 Leu Phe Val His Ala Arg Lys Gly Phe Gly Phe Val Ser Pro Asp Asn  
 50 55 60  
 Pro Glu Glu Tyr Pro Phe Asp Ile Phe Val Pro Ala Arg Asp Leu Arg  
 65 70 75 80  
 Gly Ala Leu Asp Gly Asp His Val Ile Val Ser Val Leu Pro Tyr Pro  
 85 90 95  
 Arg Asp Gly Gln Lys Leu Lys Gly Thr Ile Ser Glu Val Leu Ala Arg  
 100 105 110  
 Gly Lys Thr Thr Leu Val Gly Thr Ile Thr Ser Leu Val Ser Pro Thr  
 115 120 125  
 Ser Ala Leu Ala Tyr Thr Ser Met Ser Gly Ser Gln Ser Leu Ile Pro  
 130 135 140  
 Val Glu Leu Leu Pro Gly Arg Thr Tyr Lys Ile Gly Asp Arg Ile Leu  
 145 150 155 160  
 Leu Ser Thr Pro Pro Trp Val Asp Lys Pro Gln Glu Gly Ala Ser Pro  
 165 170 175  
 Ala Leu Gln Met Leu Glu Phe Ile Gly His Ile Thr Asn Ala Lys Ala  
 180 185 190  
 Asp Phe Gln Ala Ile Gln Ala Glu Tyr Asn Leu Ala Glu Glu Phe Pro  
 195 200 205  
 Pro Glu Val Ile Glu Glu Ala Ser Leu Phe Ser Gln Xaa Xaa Leu Thr  
 210 215 220  
 Gln Val Leu Gln Leu Ser Gln Arg Ser Pro  
 225 230  
 <210>546  
 <211>258  
 <212>PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;546

Pro Lys Phe Ser Asn Ser Arg Lys Asp Leu Arg Asp Leu Leu Cys Phe  
 1 5 10 15  
 Thr Ile Asp Ser Ser Thr Ala Arg Asp Phe Asp Asp Ala Ile Ser Leu  
 20 25 30  
 Thr Tyr Asp His Asn Asn Asn Tyr Ile Leu Gly Val His Ile Ala Asp  
 35 40 45  
 Val Ser His Tyr Val Thr Pro His Ser His Leu Asp Lys Glu Ala Ala  
 50 55 60  
 Lys Arg Cys Asn Ser Thr Tyr Phe Pro Gly Lys Val Ile Pro Met Leu  
 65 70 75 80  
 Pro Ser Ala Leu Ser Asp Asn Leu Cys Ser Leu Lys Pro Asn Val Asp  
 85 90 95  
 Arg Leu Ala Val Ser Val Phe Met Thr Phe Thr Lys Ser Gly His Leu  
 100 105 110  
 Ser Asp Tyr Gln Ile Phe Arg Ser Val Ile Arg Ser Lys Tyr Arg Met  
 115 120 125  
 Thr Tyr Asp Glu Val Asp Asn Ile Ile Glu Lys Lys His Ser His Pro  
 130 135 140  
 Leu Ser Lys Ile Leu Asn Glu Met Ala Thr Leu Ser Lys Lys Phe Ser  
 145 150 155 160  
 Asp Ile Arg Glu Glu Arg Gly Cys Ile Arg Phe Val Leu Pro Ser Val  
 165 170 175  
 Thr Met Ser Leu Asp Asn Leu Gln Glu Pro Val Ala Leu Ile Glu Asn  
 180 185 190  
 His Gln Thr Phe Ser His Lys Leu Ile Glu Glu Phe Met Leu Lys Ala  
 195 200 205  
 Asn Glu Val Val Ala Tyr His Ile Ser His Gln Gly Val Ser Leu Pro  
 210 215 220  
 Phe Arg Ser His Glu Pro Pro Asn Asp Glu Asn Leu Leu Ala Phe Gln  
 225 230 235 240  
 Glu Xaa Ala Lys Asn Met Gly Phe Asp Ile Thr Phe Thr Pro Thr Gln  
 245 250 255  
 Arg Thr

&lt;210&gt;547

&lt;211&gt;286

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;547

Lys Thr Thr Arg Pro Ser Pro Ile Asn Ser Ser Lys Ser Leu Cys Leu  
 1 5 10 15  
 Lys Gln Thr Lys Trp Ser Pro Ile Ile Ser Pro Ile Lys Ala Phe Leu  
 20 25 30  
 Tyr Leu Phe Val Val Thr Asn Leu Pro Met Met Lys Thr Tyr Ser Pro  
 35 40 45  
 Ser Lys Xaa Xaa Gln Lys Thr Trp Ala Leu Ile Ser Arg Ser Leu Pro  
 50 55 60  
 His Lys Glu Pro Asp Tyr Gln Tyr Leu Leu Gln Thr Thr Ser Ala Gly  
 65 70 75 80  
 His Pro Leu Glu Gln Val Leu His Ser Gln Phe Val Arg Ser Met Lys  
 85 90 95  
 Thr Ala Ser Tyr Ser Thr Glu Asn Lys Gly His Tyr Gly Leu Lys Leu  
 100 105 110  
 Asp Tyr Tyr Thr His Phe Thr Ser Pro Ile Arg Arg Tyr Ile Asp Leu  
 115 120 125  
 Ile Val His Arg Leu Leu Phe Asn Pro Leu Ser Ile Asp Gln Thr His  
 130 135 140  
 Leu Glu Ile Ile Val Arg Ala Cys Ser Thr Lys Glu Arg Val Ser Ala  
 145 150 155 160  
 Lys Ala Glu Asn Ser Phe Glu Asn Leu Lys Lys Thr Arg Phe Ile Asn  
 165 170 175  
 Lys Phe Leu Gln Glu Gln Pro Lys Thr Thr Tyr His Ala Tyr Ile Ile

180 185 190  
 Thr Ala Asn His Glu Gly Leu Ser Phe Val Val Thr Glu Phe Cys His  
 195 200 205  
 Glu Gly Phe Ile Ala Ala Ala Glu Leu Pro Lys Glu Tyr Ser Leu Lys  
 210 215 220  
 Lys Asn Ala Leu Pro Glu Ser Ile Pro Asp Lys Met Lys Pro Gly Ala  
 225 230 235 240  
 Ser Arg Lys Val Thr Ile Asp Ser Val Asn Leu Leu Thr Gln Lys Ile  
 245 250 255  
 Val Trp Ser Ile Ala Thr Thr Thr Glu Asp Lys Pro Lys Lys Ile Lys  
 260 265 270  
 Lys Thr Pro Ser Lys Lys Lys Gly Thr Lys Lys Arg Ala Ser  
 275 280 285

&lt;210&gt;548

&lt;211&gt;201

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;548

Lys Glu Pro Arg Asn Val Leu Gln Glu His Phe Phe Leu Ser Glu Asp  
 1 5 10 15  
 Val Ile Thr Leu Ala Gln Gln Leu Leu Gly His Lys Leu Ile Thr Thr  
 20 25 30  
 His Glu Gly Leu Ile Thr Ser Gly Tyr Ile Val Glu Thr Glu Ala Tyr  
 35 40 45  
 Arg Gly Pro Asp Asp Lys Ala Cys His Ala Tyr Asn Tyr Arg Lys Thr  
 50 55 60  
 Gln Arg Asn Arg Ala Met Tyr Leu Lys Arg Gly Ser Ala Tyr Leu Tyr  
 65 70 75 80  
 Arg Cys Tyr Gly Met His His Leu Leu Asn Val Val Thr Gly Pro Glu  
 85 90 95  
 Asp Ile Pro His Ala Val Leu Ile Arg Ala Ile Leu Pro Asp Gln Gly  
 100 105 110  
 Lys Glu Leu Met Ile Gln Arg Arg Gln Trp Arg Asp Lys Pro Pro His  
 115 120 125  
 Leu Leu Thr Asn Gly Pro Gly Lys Val Cys Gln Ala Leu Gly Ile Ser  
 130 135 140  
 Leu Glu Asn Asn Arg Gln Arg Leu Asn Thr Pro Ala Leu Tyr Ile Ser  
 145 150 155 160  
 Lys Glu Lys Ile Ser Gly Thr Leu Thr Ala Thr Ala Arg Ile Gly Ile  
 165 170 175  
 Asp Tyr Ala Gln Glu Tyr Arg Asp Val Pro Trp Arg Phe Leu Leu Ser  
 180 185 190  
 Pro Glu Asp Ser Gly Lys Val Leu Ser  
 195 200

&lt;210&gt;549

&lt;211&gt;189

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;549

Ala Trp Leu Arg Asn Ser Leu Thr Lys Phe Ser Phe Tyr Thr Lys His  
 1 5 10 15  
 Arg Ala Leu Leu Lys Phe Val Leu Gln Ile Ile Leu Leu Phe Gly Leu  
 20 25 30  
 Phe Phe Ala Thr Val Leu Leu Gly Phe Leu Thr Arg Ile Met Ile Phe  
 35 40 45  
 Lys Ser Leu Leu Ser Ile Tyr Asp Lys Ile Leu His Arg Ile Pro Ile  
 50 55 60  
 Ile Lys Thr Val Tyr Lys Ala Ala Gln Gln Val Met Thr Thr Ile Phe  
 65 70 75 80  
 Gly Ser Lys Ser Gly Ser Phe Lys Gln Val Val Met Val Pro Phe Pro  
 85 90 95  
 Asn Ala Asn Val Gln Cys Ile Gly Leu Val Ala Gly Asp Ala Pro Thr  
 100 105 110  
 Val Cys Cys Thr Gly Glu Lys Glu Asp Asp Pro Leu Val Thr Val Phe

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      115      120      125
Ile Pro Thr Thr Pro Asn Pro Thr Ser Gly Phe Leu Thr Leu Phe Arg
      130      135      140
Lys Ser Asp Ile Val Phe Leu Asp Met Lys Ile Glu Asp Ala Phe Lys
145      150      155      160
Tyr Ile Ile Ser Cys Gly Val Leu Ser Thr Pro Met Ala Cys Pro Ser
      165      170      175
Ser Pro Leu Pro Asp Glu Leu His Gln Asp Gln Gly Ser
      180      185

<210>550
<211>390
<212>PRT
<213>Chlamydia pneumoniae
<400>550
Gln Leu Asn Met Leu His Ile Leu Leu Ala Ile Phe Cys Ile Leu Leu
 1      5      10      15
Phe Leu Ala Phe Gly Leu Thr Gln Pro Ser Cys His Gly Ser Ser Lys
      20      25      30
Phe Leu Lys Thr Leu Asn Gln Arg Phe Phe Thr Asp Lys Gly Arg Glu
      35      40      45
Tyr Pro Pro Phe Pro Ser Ala Pro Thr Ile Leu Ala Thr Leu Leu Cys
      50      55      60
Ile Leu Tyr Gly Ala Leu Gly Thr Lys Leu Tyr Thr Leu Leu Pro Pro
      65      70      75      80
Lys Thr Ala His Lys Asp Leu Leu Phe Trp Pro Leu Tyr Ser Leu Ser
      85      90      95
Ala Leu Ile Ala Tyr Gly Phe Leu Pro Pro Trp Ile Ser Thr Lys Val
      100      105      110
Pro Lys Glu Thr Thr Ala His Leu Arg Phe Leu Ala Ser Val Phe Gln
      115      120      125
Leu Gly Leu Phe Pro Leu Gln Leu Leu Phe Tyr Arg Arg Arg Pro Asn
      130      135      140
Gln Gln Val Arg Ser Ser Thr Ser Phe Gln Ser Gln Leu Ser Glu Ala
145      150      155      160
Leu Ser Ala Phe Asp Asn Leu Ile Val Arg Glu Val Met Ile Pro Lys
      165      170      175
Val Asp Ile Phe Ala Leu Pro Glu Glu Thr Thr Leu Gln Glu Ala Leu
      180      185      190
Val Leu Val Ser Glu Glu Gly Tyr Ser Arg Val Pro Val Tyr Lys Lys
      195      200      205
Asn Leu Asp Asn Ile Thr Gly Ile Leu Leu Val Lys Asp Leu Leu Leu
      210      215      220
Leu Tyr Thr Ser Ser His Asp Leu Ser Gln Pro Ile Ser Ser Val Ala
225      230      235      240
Lys Pro Pro Phe Tyr Ala Pro Glu Ile Lys Lys Ala Ser Ser Leu Leu
      245      250      255
Gln Glu Phe Arg Gln Lys His Arg His Leu Ala Ile Ile Val Asn Glu
      260      265      270
Tyr Gly Phe Thr Glu Gly Ile Ala Thr Met Glu Asp Ile Ile Glu Glu
      275      280      285
Ile Ile Gly Glu Ile Ala Asp Glu His Asp Val Gln Glu Asn Thr Pro
      290      295      300
Tyr Lys Lys Ile Gly Ser Ser Trp Ile Val Asp Gly Arg Met Asn Ile
305      310      315      320
Ser Asp Ala Glu Glu Tyr Phe Asn Leu Lys Ile Asp His Glu Asn Ser
      325      330      335
Tyr Asp Thr Leu Gly Gly His Val Phe His Lys Val Gly Ala Val Pro
      340      345      350
Gln Lys Gly Met Arg Ile His His Glu Asn Phe Asp Ile Glu Ile Ile
      355      360      365
Thr Cys Thr Glu Arg Asn Val Gly Lys Leu Lys Ile Thr Pro Arg Lys
      370      375      380
Arg Lys Phe Asn Ile Ser
385      390

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&lt;210&gt;551

&lt;211&gt;116

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;551

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Met Ser Asp Ile Gln Lys Glu Glu His Gly Ser Thr Thr Ile Phe His
 1           5           10           15
Leu His Gly Lys Leu Asp Gly Ile Ser Ser Pro Glu Val Gln Glu Asn
      20           25           30
Ile Tyr Gln Ser Leu Ala Ala Gly Ser Lys Asn Ile Ile Leu Asp Cys
      35           40           45
Ala His Leu Asp Tyr Met Ser Ser Ala Gly Ile Arg Val Leu Leu Gln
      50           55           60
Ser Tyr His Gln Val Gly Gln His Ser Gly Lys Ile Val Leu Thr Thr
      65           70           75           80
Val Pro Lys Thr Ile Glu Gln Thr Leu Tyr Val Thr Gly Phe Leu Ser
      85           90           95
Tyr Phe Lys Ile Phe Asn Thr Val Asp Glu Ala Ile Gln Thr Leu Asn
      100           105           110
Lys Asp Gly Asp
      115

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&lt;210&gt;552

&lt;211&gt;212

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;552

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Ser Leu Pro Leu Thr Met Arg Arg Ser Val Cys Tyr Val Asn Pro Ser
 1           5           10           15
Ile Ala Arg Ala Gly Gln Ile Ser Thr Trp Lys Phe Leu Tyr Ser Leu
      20           25           30
Ala Thr Pro Leu Pro Ala Gly Thr Lys Cys Lys Phe Asp Leu Ala Gly
      35           40           45
Ser Gly Lys Pro Thr Asp Trp Glu Ala Pro Ala Thr Asp Leu Ser Gln
      50           55           60
Thr Arg Asn Val Ile Tyr Ala Glu Met Pro Glu Gly Glu Ile Ile Glu
      65           70           75           80
Ala Thr Ala Ile Pro Val Lys Asp Asn Pro Val Pro Gln Phe Glu Phe
      85           90           95
Thr Leu Pro Tyr Glu Leu Gln Val Gly Glu Thr Leu Thr Ile Val Met
      100           105           110
Gly Ala Ser Pro Asn His Pro Gln Val Asp Asp Ala Gly Asn Gly Ala
      115           120           125
Gln Leu Phe Ala Gln Arg Arg Lys Pro Phe Tyr Leu Tyr Ile Asp Pro
      130           135           140
Thr Gly Glu Gly Asn Tyr Asp Glu Pro Asp Val Phe Ser Met Asp Ile
      145           150           155           160
Arg Gly Asn Val Leu Lys Lys Ile Glu Ile Phe Thr Pro Ser Tyr Val
      165           170           175
Val Lys Asn Lys Arg Phe Asp Ile Thr Val Arg Phe Glu Asp Glu Phe
      180           185           190
Gly Asn Leu Thr Asn Phe Ser Pro Glu Glu Asp Pro Asn Arg Ala Phe
      195           200           205
Leu Arg Ala Ser
      210

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&lt;210&gt;553

&lt;211&gt;457

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;553

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Arg Ser Leu Leu Pro Pro Met Ser Leu Lys Thr Asn Ala Ser Ile Ser
 1           5           10           15
Pro Cys Asp Leu Lys Thr Asn Ser Gly Thr Ser Pro Thr Ser Leu Leu
      20           25           30
Lys Lys Thr Arg Ile Glu Leu Ser Tyr Glu His Leu Arg Glu Asn Leu

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      35      40      45
Asn Trp Gln Leu Phe Ile Pro Glu Thr Gly Phe Val Ile Leu Pro Asn
  50      55      60
Leu Tyr Phe Asn Glu Pro Gly Ile Tyr Arg Ile Gln Leu Lys Asn Leu
  65      70      75      80
Ser Thr Gln Xaa Ile Phe Ile Ser Ala Pro Ile Lys Cys Phe Ala Asp
      85      90      95
Ser Ala Pro Asn Leu Met Trp Gly Leu Leu His Gly Glu Ser Glu Arg
      100      105      110
Val Asp Ser Glu Glu Asn Ile Glu Thr Cys Met Arg Tyr Phe Arg Asp
      115      120      125
Asp Arg Ala Leu Asn Phe Tyr Ala Ser Ser Ser Phe Glu Asn Gln Glu
      130      135      140
Asn Leu Ser Pro Asp Ile Trp Lys Leu Ile Asn Gln Thr Val Ser Asp
      145      150      155      160
Phe Asn Glu Glu Asp Arg Phe Ile Thr Leu Ser Gly Phe Gln Tyr Ser
      165      170      175
Gly Glu Pro His Leu Glu Gly Val Arg His Ile Leu His Thr Lys Glu
      180      185      190
Thr Lys Ser His Ser Lys His Lys Glu Tyr Lys His Ile Pro Leu Ala
      195      200      205
Lys Leu Tyr Lys Ser Thr Val Asn His Asp Met Ile Ser Ile Pro Ser
      210      215      220
Phe Thr Ala Ser Lys Glu His Gly Phe Asp Phe Glu Asn Phe Tyr Pro
      225      230      235      240
Glu Phe Glu Arg Val Val Glu Ile Tyr Asn Ala Trp Gly Ser Ser Glu
      245      250      255
Thr Thr Ala Ala Leu Asn Asn Pro Phe Pro Ile Gln Gly Lys Asp Ser
      260      265      270
Glu Asp Pro Arg Gly Thr Val Ile Glu Gly Leu Lys Lys Asn Leu Arg
      275      280      285
Phe Gly Phe Val Ala Gly Gly Leu Asp Asp Arg Gly Ile Tyr Lys Asp
      290      295      300
Tyr Phe Asp Ser Pro Gln Val Gln Tyr Ser Pro Gly Leu Thr Ala Ile
      305      310      315      320
Ile Cys Asn Lys Tyr Thr Arg Glu Ser Leu Val Glu Ala Leu Phe Ala
      325      330      335
Arg His Cys Tyr Ala Thr Thr Gly Pro Arg Ile Val Leu Ser Phe Asn
      340      345      350
Ile Thr Ser Ala Pro Met Gly Ser Glu Leu Ser Thr Gly Ser Lys Pro
      355      360      365
Gly Leu Asn Val Asn Arg His Ile Ser Gly His Val Ala Gly Thr Ala
      370      375      380
Leu Leu Lys Thr Val Glu Ile Ile Arg Asn Gly Glu Val Leu His Thr
      385      390      395      400
Phe Phe Pro Asp Ser Asn Asn Leu Asp Tyr Glu Tyr Asp Asp Met Val
      405      410      415
Pro Leu Ser Ser Val Thr Leu Lys Asp Pro Asn Gly Lys Ala Pro Phe
      420      425      430
Val Phe Tyr Tyr Leu Arg Val Thr Gln Ala Asp Asn Ala Met Ala Trp
      435      440      445
Ser Ser Pro Ile Trp Val Asp Leu Asn
      450      455
<210>554
<211>409
<212>PRT
<213>Chlamydia pneumoniae
<400>554
Leu Ala Gly Pro Ser Leu Lys Gly Val Lys Asn Gln Ile Ala Ala Lys
  1      5      10      15
Lys Lys His Val Thr Lys Gln Ser Thr Val Leu Gln Asn Leu Glu Arg
      20      25      30
Ile Val His Gln Ser Val His Gln Met Thr Thr Cys Leu Pro Gln Pro
      35      40      45

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Pro Lys Thr Ser Pro Pro Tyr Ser Ile Phe Glu Lys Leu Asp Ala Gln  
 50 55 60  
 Glu Arg Leu Ser Ser Glu Asp Ala Leu His Leu Leu Leu Thr Asn  
 65 70 75 80  
 Lys Glu Asp Gln Arg Thr Leu Trp Asn Phe Ala Asp Gln Val Arg Lys  
 85 90 95  
 Gln Arg Val Gly Asp Thr Val Tyr Tyr Ser Ser Thr Leu Tyr Leu Tyr  
 100 105 110  
 Pro Thr Asn Phe Cys Asp Phe Ser Cys Lys Phe Cys Ser Phe Tyr Ala  
 115 120 125  
 Lys Pro Gly Asp Pro Lys Gly Trp Leu Tyr Ser Pro Asp Asp Leu Leu  
 130 135 140  
 Gln Gln Ile Gln Asn Ile Lys Thr Pro Ile Thr Glu Val His Ile Val  
 145 150 155 160  
 Gly Gly Cys Phe Pro Ser Cys Asn Leu Gln Tyr Tyr Ser Asp Leu Phe  
 165 170 175  
 Thr Lys Ile Lys Glu Tyr Asp Pro Gln Ile His Ile Lys Ala Leu Thr  
 180 185 190  
 Ala Ile Glu Tyr Ala Tyr Leu Ser Asp Leu Asp Asn Leu Ser Ile Arg  
 195 200 205  
 Asp Val Leu Leu Thr Leu Lys Asp Ala Gly Leu Asp Ser Ile Pro Gly  
 210 215 220  
 Gly Gly Ala Glu Ile Leu Val Asp Lys Ile Arg Asn Phe Leu Ala Pro  
 225 230 235 240  
 Lys Arg Leu Ser Ser Ser Asp Phe Leu Asn Ile His Lys Met Ala His  
 245 250 255  
 Gln Leu Gly Ile His Ser Asn Ile Thr Met Leu Cys Tyr His Lys Glu  
 260 265 270  
 Gly Pro Glu Asp Leu Val Thr His Met Val Lys Val Arg Asp Leu Gln  
 275 280 285  
 Asp Glu Thr Gln Gly Phe Lys Asn Phe Ile Leu Leu Lys Phe Ala Gln  
 290 295 300  
 Glu Asn Asn Val Leu Gly Lys Arg Leu Arg Lys Ser Gly Gln Gly His  
 305 310 315 320  
 Ala Ile Pro Leu Lys Ser Leu Met Ala Val Ala Arg Ile Phe Leu Asp  
 325 330 335  
 Asn Phe Ser Asn Met Lys Ala Leu Trp Asn Tyr Leu Gly Ile Glu Ala  
 340 345 350  
 Ala Leu Asp Leu Leu Ser Cys Gly Ala Asn Asp Leu Ser Ser Thr His  
 355 360 365  
 Met Gly Glu Lys Val Phe Gln Met Ala Ser Ser Lys Glu Pro Ile Lys  
 370 375 380  
 Met Asp Ala Glu Gly Met Ala Ala Leu Ile Thr Gln Gln Gly Arg Thr  
 385 390 395 400  
 Pro Cys Leu Thr Asn Ser Ser His Val  
 405

&lt;210&gt;555

&lt;211&gt;277

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;555

Gly Asn Gly Gly Pro His His Thr Thr Arg Glu Asn Ala Met Ser Asn  
 1 5 10 15  
 Gln Leu Gln Pro Cys Ile Ser Leu Gly Cys Val Ser Tyr Ile Asn Ser  
 20 25 30  
 Phe Pro Leu Ser Leu Gln Leu Ile Lys Arg Asn Asp Ile Arg Cys Val  
 35 40 45  
 Leu Ala Pro Pro Ala Asp Leu Leu Asn Leu Leu Ile Glu Gly Lys Leu  
 50 55 60  
 Asp Val Ala Leu Thr Ser Ser Leu Gly Ala Ile Ser His Asn Leu Gly  
 65 70 75 80  
 Tyr Val Pro Gly Phe Gly Ile Ala Ala Asn Gln Arg Ile Leu Ser Ala  
 85 90 95  
 Asn Leu Tyr Ala Ala Pro Thr Phe Phe Asn Ser Pro Gln Pro Arg Ile



100 105 110  
 Ala Ala Thr Leu Glu Ser Arg Ser Ser Ile Gly Leu Leu Lys Val Leu  
 115 120 125  
 Cys Arg His Leu Trp Arg Ile Pro Thr Pro His Ile Leu Arg Phe Ile  
 130 135 140  
 Thr Thr Lys Val Leu Arg Gln Thr Pro Glu Asn Tyr Asp Gly Leu Leu  
 145 150 155 160  
 Leu Ile Gly Asp Ala Ala Leu Gln His Pro Val Leu Pro Gly Phe Val  
 165 170 175  
 Thr Tyr Asp Leu Ala Ser Gly Trp Tyr Asp Leu Thr Lys Leu Pro Phe  
 180 185 190  
 Val Phe Ala Leu Leu Leu His Ser Thr Ser Trp Lys Glu His Pro Leu  
 195 200 205  
 Pro Asn Leu Ala Met Glu Glu Ala Leu Gln Gln Phe Glu Ser Ser Pro  
 210 215 220  
 Glu Glu Val Leu Lys Glu Ala His Gln His Thr Gly Leu Pro Pro Ser  
 225 230 235 240  
 Leu Leu Gln Glu Tyr Tyr Ala Leu Cys Gln Tyr Arg Leu Gly Glu Glu  
 245 250 255  
 His Tyr Glu Ser Phe Glu Lys Phe Arg Glu Tyr Tyr Gly Thr Leu Tyr  
 260 265 270  
 Gln Gln Ala Arg Leu  
 275

&lt;210&gt;556

&lt;211&gt;237

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;556

Leu Lys Asn Ser Gly Asn Ile Met Glu Pro Ser Thr Asn Lys Pro Asp  
 1 5 10 15  
 Cys Lys Lys Ile Phe Asp Ser Ile Ala Ser Lys Tyr Asp Arg Thr Asn  
 20 25 30  
 Thr Ile Leu Ser Leu Gly Met His His Phe Trp Asn Arg Ser Leu Ile  
 35 40 45  
 Gln Ile Leu Gly Ser Gly Tyr Ser Leu Leu Asp Leu Cys Ala Gly Thr  
 50 55 60  
 Gly Lys Val Ala Lys Arg Tyr Ile Ala Ala His Pro Gln Ala Ser Val  
 65 70 75 80  
 Thr Leu Val Asp Phe Ser Ser Ala Met Leu Asp Ile Ala Lys Gln His  
 85 90 95  
 Leu Pro Gln Gly Ser Cys Ser Phe Ile His Ser Asp Ile Asn Gln Leu  
 100 105 110  
 Pro Leu Glu Asn His Ser Tyr Pro Leu Ala Ala Met Ala Tyr Gly Leu  
 115 120 125  
 Arg Asn Leu Ser Asp Pro His Lys Ala Leu Gln Glu Ile Ser Arg Val  
 130 135 140  
 Leu Met Pro Ser Gly Lys Leu Gly Ile Leu Glu Leu Thr Pro Pro Lys  
 145 150 155 160  
 Lys Thr His Pro Thr Tyr Ser Ala His Lys Leu Tyr Leu Arg Ala Val  
 165 170 175  
 Val Pro Trp Ile Gly Lys Ser Val Ser Lys Asp Pro Asp Ala Tyr Ser  
 180 185 190  
 Tyr Leu Ser Lys Ser Ile Gln Gln Leu Pro Lys Asp His Asp Leu Glu  
 195 200 205  
 Asp Leu Phe Ser Lys Ser Gly Phe Tyr Ile Ala Lys Lys Lys Leu  
 210 215 220  
 Phe Leu Gly Ala Ala Thr Ile Trp Leu Leu Glu Lys Gln  
 225 230 235

&lt;210&gt;557

&lt;211&gt;550

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;557

Arg Ile Ser Ile Ser Phe Arg Val Ser Trp Phe Val Lys Ile Ile Leu

|   |     |     |     |
|---|-----|-----|-----|
| 1   | 5   | 10  | 15  |
| Ala Val Leu Gly Arg Ala Ile Ala Lys Ala Tyr Tyr Val Cys Met Val |     |     |     |
| 20  | 25  | 30  |     |
| Ala Arg Gly Leu Cys Asp Phe Pro Thr Leu Val Pro Asn Glu Arg Leu |     |     |     |
| 35  | 40  | 45  |     |
| Pro Ile Gly Pro Phe Phe Val Pro Gln His Thr Ser Gly Ala Lys Gly |     |     |     |
| 50  | 55  | 60  |     |
| Lys Glu Phe Ala Lys Arg Asn Phe Ser Ile Ile Ser Gly Leu Asp Asp |     |     |     |
| 65  | 70  | 75  | 80  |
| Ile Leu Lys Leu Cys Ile Leu Gln Arg Arg Pro Phe Ala Leu Gln Trp |     |     |     |
| 85  | 90  | 95  |     |
| Asp Asn Leu Ser Val Lys Ser Asp Tyr Glu Glu Ala Gly Pro Ala Ile |     |     |     |
| 100   | 105 | 110 |     |
| Gly Ile Arg Ser Leu Glu Pro Gln Val Ser Gln Ile Ser Pro Ala His |     |     |     |
| 115   | 120 | 125 |     |
| Gly Arg Leu Cys Ser Thr Leu Val Gln Trp Ala Pro Ile Leu Gly Ser |     |     |     |
| 130   | 135 | 140 |     |
| Glu Glu Arg Leu Val Trp Leu Glu Glu Thr Met Lys Arg Leu Lys Phe |     |     |     |
| 145   | 150 | 155 | 160 |
| Pro Lys Ser Leu Gly Ser Lys Asp Ala Val Ile Val Asp Ser Glu Met |     |     |     |
| 165   | 170 | 175 |     |
| Val Pro Val Asn Ala Asn Pro Thr Gln Glu Ile Pro Ala Ala Ser Glu |     |     |     |
| 180   | 185 | 190 |     |
| Thr Val Glu Ser Ser Pro Val Ala Pro Gly Asn Thr Thr Asp Thr Met |     |     |     |
| 195   | 200 | 205 |     |
| Pro Ala Ala Ser Gly Thr Thr Asp Thr Thr Ser Gly Val Ser Glu Ala |     |     |     |
| 210   | 215 | 220 |     |
| Ala Ala Ala Glu Ala Thr Val Asp Ser Thr Pro Gly Thr Glu Glu Glu |     |     |     |
| 225   | 230 | 235 | 240 |
| Pro Ser Phe Ser Leu Arg Tyr Ala Leu Val Val Gln Asn Val Pro Tyr |     |     |     |
| 245   | 250 | 255 |     |
| Pro Glu Pro Pro Lys Glu Pro Glu Val Met Phe Thr Asp Glu Glu Lys |     |     |     |
| 260   | 265 | 270 |     |
| Ser Leu Ile Leu Glu Ala Thr Arg Ala Arg Arg Met Glu Leu Asp Leu |     |     |     |
| 275   | 280 | 285 |     |
| Tyr Asn Gly Tyr Leu Ala Asp Tyr Glu Leu Ser Lys Asp Glu Ile Gln |     |     |     |
| 290   | 295 | 300 |     |
| Lys His Val Pro Asp Leu Pro Glu Asn Trp Arg Thr Asn Trp Arg Trp |     |     |     |
| 305   | 310 | 315 | 320 |
| Ser Glu Arg Leu Tyr Lys Phe Phe Phe Lys Thr Lys Lys Glu Gly Leu |     |     |     |
| 325   | 330 | 335 |     |
| Glu Glu Ile Phe Leu Asn Lys Glu Leu Gly Asn Met Ile Leu Ala Arg |     |     |     |
| 340   | 345 | 350 |     |
| Gly Leu Ala Ala Thr Gln Ser Gln Ala Arg Ile Lys Val Phe Asn Ser |     |     |     |
| 355   | 360 | 365 |     |
| Leu Val Ala Trp Leu Leu Gln Ser Phe Asn Val Gly Arg Ser Cys Thr |     |     |     |
| 370   | 375 | 380 |     |
| Ala Lys Pro Leu Pro Thr Ser Lys Leu Asp Leu Phe Lys Ser Glu Phe |     |     |     |
| 385   | 390 | 395 | 400 |
| Glu Ser Lys Pro Lys Asn Asn Ile Leu Thr Glu Phe Leu Val Ala Ser |     |     |     |
| 405   | 410 | 415 |     |
| Asp Glu Glu Ile Leu Phe Lys Gly Leu Arg Val Leu Glu Pro Gly Ile |     |     |     |
| 420   | 425 | 430 |     |
| Glu Gly Trp Tyr Asp His Pro Asp Gln Ala Gly Glu Ile Arg Ser Val |     |     |     |
| 435   | 440 | 445 |     |
| Leu Glu Gly Leu Val Gln Ala Gly Arg Ile Ser Gly Tyr Trp Glu Asn |     |     |     |
| 450   | 455 | 460 |     |
| Gln Pro Phe Gly Arg Phe Val Leu Arg Gly Val Gly Glu Arg Arg Thr |     |     |     |
| 465   | 470 | 475 | 480 |
| Glu Leu Val Glu Leu Leu Glu Ser Leu Val Ala Ser Gly Glu Ile Met |     |     |     |
| 485   | 490 | 495 |     |
| Gln Phe Phe Glu Ser Ser Asp Glu Glu Gly Ala Phe Ile Ile Asp Asn |     |     |     |
| 500   | 505 | 510 |     |
| Glu Pro Ser Lys Thr Ala Met Leu Lys Gln Arg Phe Lys Ser Cys Val |     |     |     |

515 520 525  
 Arg Thr Lys Leu Val Gly Ser Phe Ala Asp Glu Ser Leu Pro Arg Gly  
 530 535 540  
 Arg Phe Thr Ile Leu Val  
 545 550  
 <210>558  
 <211>325  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>558  
 Phe Met Met Thr Tyr Pro Val Pro Gln Asn Pro Leu Leu Leu Arg Ile  
 1 5 10 15  
 Leu Arg Leu Met Asp Ala Phe Ser Lys Ser Asp Asp Glu Arg Asp Phe  
 20 25 30  
 Tyr Leu Asp Arg Val Glu Gly Phe Ile Leu Tyr Ile Asp Leu Asp Lys  
 35 40 45  
 Asp Gln Glu Asp Leu Asn Lys Ile Tyr Gln Glu Leu Glu Glu Asn Ala  
 50 55 60  
 Glu Arg Tyr Cys Leu Ile Pro Lys Leu Thr Phe Tyr Glu Val Lys Lys  
 65 70 75 80  
 Ile Met Glu Thr Phe Ile Asn Glu Lys Ile Tyr Asp Ile Asp Thr Lys  
 85 90 95  
 Glu Lys Phe Leu Glu Ile Leu Gln Ser Lys Asn Ala Arg Glu Gln Phe  
 100 105 110  
 Leu Glu Phe Ile Tyr Asp His Glu Ala Glu Leu Glu Lys Trp Gln Gln  
 115 120 125  
 Phe Tyr Val Glu Arg Ser Arg Ile Arg Ile Ile Glu Trp Leu Arg Asn  
 130 135 140  
 Asn Lys Phe His Phe Val Phe Glu Glu Asp Leu Asp Phe Thr Lys Asn  
 145 150 155 160  
 Val Leu Glu Gln Leu Lys Ile His Leu Phe Asp Ala Lys Val Gly Lys  
 165 170 175  
 Glu Ile Thr Gln Ala Arg Gln Leu Leu Ser Asn Lys Ala Lys Ile Tyr  
 180 185 190  
 Tyr Ser Asn Glu Ala Leu Asn Pro Arg Pro Lys Arg Gly Arg Pro Pro  
 195 200 205  
 Lys Gln Ser Ala Lys Val Glu Thr Glu Thr Thr Ile Ser Ser Asp Ile  
 210 215 220  
 Tyr Thr Lys Val Pro Gln Ala Ala Arg Arg Phe Leu Phe Leu Pro Glu  
 225 230 235 240  
 Ile Thr Ser Pro Ser Ser Ile Thr Phe Ser Glu Lys Phe Asp Thr Glu  
 245 250 255  
 Glu Glu Phe Leu Ala Asn Leu Arg Gly Ser Thr Arg Val Glu Asp Gln  
 260 265 270  
 Leu Asn Leu Thr Asn Leu Ser Glu Arg Phe Ala Ser Leu Lys Glu Leu  
 275 280 285  
 Ser Ala Lys Leu Gly Tyr Asp Ser Leu Ser Thr Gly Asp Phe Phe Gly  
 290 295 300  
 Asp Asp Asp Glu Lys Val Val Thr Lys Thr Lys Gly Ser Lys Arg Gly  
 305 310 315 320  
 Arg Lys Lys Ser Ser  
 325  
 <210>559  
 <211>261  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>559  
 Leu Val Tyr Trp Met Ala Phe Tyr Ser Pro Ser Thr Ile Ser Lys Tyr  
 1 5 10 15  
 Phe Ile Tyr Ser Gly Ala Gly Asn Arg Phe Leu Leu Gly Glu Thr Leu  
 20 25 30  
 Pro Glu Val Glu Asp Val Arg Phe Leu Cys Gln Glu Thr Arg Val Asp  
 35 40 45  
 Gly Phe Leu Tyr Leu Lys Pro Ser Ser Cys Ala Asp Ala Gln Leu Ile

50 55 60  
 Ile Phe Asn Ser Asp Gly Ser Arg Pro Thr Met Cys Gly Asn Gly Leu  
 65 70 75 80  
 Arg Cys Ala Ile Ala His Leu Ala Ser Gln Lys Gly Lys Ser Asp Ile  
 85 90 95  
 Ser Val Ser Thr Asp Ser Gly Leu Tyr Ser Gly Tyr Phe Tyr Ser Trp  
 100 105 110  
 Asp Arg Val Leu Val Asp Met Thr Leu Ala Asp Trp Arg Ala Ser Val  
 115 120 125  
 His Arg Leu Glu Ser Arg Pro Asp Pro Leu Pro Lys Glu Ile Val Cys  
 130 135 140  
 Ile His Thr Gly Val Pro His Ala Val Val Ile Leu Pro Glu Ile Ser  
 145 150 155 160  
 Thr Leu Asp Leu Ser Ile Leu Gly Pro Phe Leu Arg Tyr His Gln Thr  
 165 170 175  
 Phe Ser Pro Asp Gly Val Asn Val Asn Phe Val Gln Ile Leu Gly His  
 180 185 190  
 Cys Gln Leu Arg Val Arg Thr Tyr Glu Arg Gly Val Glu Gly Glu Thr  
 195 200 205  
 Ala Ala Cys Gly Thr Gly Ala Leu Ala Ser Ala Leu Val Val Ser Asn  
 210 215 220  
 Ser Tyr Gly Trp Lys Glu Ser Ile Gln Ile His Thr Trp Gly Gly Glu  
 225 230 235 240  
 Leu Met Thr Val Ser Gln Asn Arg Gly Arg Val Tyr Leu Gln Gly Ser  
 245 250 255  
 Val Thr Arg Asp Leu  
 260

&lt;210&gt;560

&lt;211&gt;196

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;560

Glu Arg His Tyr Phe Met Ala Asp Gly Glu Val His Lys Leu Arg Asp  
 1 5 10 15  
 Ile Ile Glu Lys Glu Leu Leu Glu Ala Arg Arg Val Phe Phe Ser Glu  
 20 25 30  
 Pro Val Thr Glu Lys Ser Ala Ser Asp Ala Ile Lys Lys Leu Trp Tyr  
 35 40 45  
 Leu Glu Leu Lys Asp Pro Gly Lys Pro Ile Val Phe Val Ile Asn Ser  
 50 55 60  
 Pro Gly Gly Ser Val Asp Ala Gly Phe Ala Val Trp Asp Gln Ile Lys  
 65 70 75 80  
 Met Leu Thr Ser Pro Val Thr Thr Val Val Thr Gly Leu Ala Ala Ser  
 85 90 95  
 Met Gly Ser Val Leu Ser Leu Cys Ala Ala Pro Gly Arg Arg Phe Ala  
 100 105 110  
 Thr Pro His Ser Arg Ile Met Ile His Gln Pro Ser Ile Gly Gly Pro  
 115 120 125  
 Ile Thr Gly Gln Ala Thr Asp Leu Asp Ile His Ala Arg Glu Ile Leu  
 130 135 140  
 Lys Thr Lys Ala Arg Ile Ile Asp Val Tyr Val Glu Ala Thr Asn Gln  
 145 150 155 160  
 Pro Arg Asp Ile Ile Glu Lys Ala Ile Asp Arg Asp Met Trp Met Thr  
 165 170 175  
 Ala Asn Glu Ala Lys Asp Phe Gly Leu Leu Asp Gly Ile Leu Phe Ser  
 180 185 190  
 Phe Asn Asp Leu  
 195

&lt;210&gt;561

&lt;211&gt;519

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;561

Leu Leu Lys Val Phe Glu Lys Phe Lys Lys Phe Ala Ile Val Glu Ile

|   |     |     |     |
|---|-----|-----|-----|
| 1   | 5   | 10  | 15  |
| Phe Thr Lys Val Val Ala Val Val Ser Leu Leu His Lys Phe Leu Glu |     |     |     |
| 20  | 25  | 30  |     |
| Asn Ala Ser Gly Lys Lys Gly Gln Ser Leu Ala Ser Thr Ala Tyr Leu |     |     |     |
| 35  | 40  | 45  |     |
| Ala Ala Leu Asp His Leu Leu Asn Ala Phe Pro Ser Ile Gly Glu Arg |     |     |     |
| 50  | 55  | 60  |     |
| Ile Ile Asp Glu Leu Lys Ser Gln Arg Ser His Leu Lys Met Ile Ala |     |     |     |
| 65  | 70  | 75  | 80  |
| Ser Glu Asn Tyr Ser Ser Leu Ser Val Gln Leu Ala Met Gly Asn Leu |     |     |     |
| 85  | 90  | 95  |     |
| Leu Thr Asp Lys Tyr Cys Glu Gly Ser Pro Phe Lys Arg Phe Tyr Ser |     |     |     |
| 100   | 105 | 110 |     |
| Cys Cys Glu Asn Val Asp Ala Ile Glu Trp Glu Cys Val Glu Thr Ala |     |     |     |
| 115   | 120 | 125 |     |
| Lys Glu Leu Phe Ala Ala Asp Cys Ala Cys Val Gln Pro His Ser Gly |     |     |     |
| 130   | 135 | 140 |     |
| Ala Asp Ala Asn Leu Leu Ala Val Met Ala Ile Leu Thr His Lys Val |     |     |     |
| 145   | 150 | 155 | 160 |
| Gln Gly Pro Ala Val Ser Lys Leu Gly Tyr Lys Thr Val Asn Glu Leu |     |     |     |
| 165   | 170 | 175 |     |
| Thr Glu Glu Glu Tyr Thr Leu Leu Lys Ala Glu Met Ser Ser Cys Val |     |     |     |
| 180   | 185 | 190 |     |
| Cys Leu Gly Pro Ser Leu Asn Ser Gly Gly His Leu Thr His Gly Asn |     |     |     |
| 195   | 200 | 205 |     |
| Val Arg Leu Asn Val Met Ser Lys Leu Met Arg Cys Phe Pro Tyr Asp |     |     |     |
| 210   | 215 | 220 |     |
| Val Asn Pro Asp Thr Glu Cys Phe Asp Tyr Ala Glu Ile Ser Arg Leu |     |     |     |
| 225   | 230 | 235 | 240 |
| Ala Lys Glu Tyr Lys Pro Lys Val Leu Ile Ala Gly Tyr Ser Ser Tyr |     |     |     |
| 245   | 250 | 255 |     |
| Ser Arg Arg Leu Asn Phe Ala Val Leu Lys Gln Ile Ala Glu Asp Cys |     |     |     |
| 260   | 265 | 270 |     |
| Gly Ser Val Leu Trp Val Asp Met Ala His Phe Ala Gly Leu Val Ala |     |     |     |
| 275   | 280 | 285 |     |
| Gly Gly Val Phe Val Asp Glu Glu Asn Pro Ile Pro Tyr Ala Asp Ile |     |     |     |
| 290   | 295 | 300 |     |
| Val Thr Thr Thr Thr His Lys Thr Leu Arg Gly Pro Arg Gly Gly Leu |     |     |     |
| 305   | 310 | 315 | 320 |
| Val Leu Ala Thr Arg Glu Tyr Glu Ser Thr Leu Asn Lys Ala Cys Pro |     |     |     |
| 325   | 330 | 335 |     |
| Leu Met Met Gly Gly Pro Leu Pro His Val Ile Ala Ala Lys Thr Val |     |     |     |
| 340   | 345 | 350 |     |
| Ala Leu Lys Glu Ala Leu Ser Val Asp Phe Lys Lys Tyr Ala His Gln |     |     |     |
| 355   | 360 | 365 |     |
| Val Val Asn Asn Ala Arg Arg Leu Ala Glu Arg Phe Leu Ser His Gly |     |     |     |
| 370   | 375 | 380 |     |
| Leu Arg Leu Leu Thr Gly Gly Thr Asp Asn His Met Met Val Ile Asp |     |     |     |
| 385   | 390 | 395 | 400 |
| Leu Gly Ser Leu Gly Ile Ser Gly Lys Ile Ala Glu Asp Ile Leu Ser |     |     |     |
| 405   | 410 | 415 |     |
| Ser Val Gly Ile Ala Val Asn Arg Asn Ser Leu Pro Ser Asp Ala Ile |     |     |     |
| 420   | 425 | 430 |     |
| Gly Lys Trp Asp Thr Ser Gly Ile Arg Leu Gly Thr Pro Ala Leu Thr |     |     |     |
| 435   | 440 | 445 |     |
| Thr Leu Gly Met Gly Ile Asp Glu Met Glu Glu Val Ala Asp Ile Ile |     |     |     |
| 450   | 455 | 460 |     |
| Val Lys Val Leu Arg Asn Ile Arg Leu Ser Cys His Val Glu Gly Ser |     |     |     |
| 465   | 470 | 475 | 480 |
| Ser Lys Lys Asn Lys Gly Glu Leu Pro Glu Ala Ile Ala Gln Glu Ala |     |     |     |
| 485   | 490 | 495 |     |
| Arg Asp Arg Val Arg Asn Leu Leu Leu Arg Phe Pro Leu Tyr Pro Glu |     |     |     |
| 500   | 505 | 510 |     |
| Ile Asp Leu Glu Ala Leu Val                                     |     |     |     |

515

&lt;210&gt;562

&lt;211&gt;367

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;562

Lys Val Phe Tyr Lys Lys Asn Val Met Ser Gly Pro Ser Arg Thr Glu  
 1 5 10 15  
 Ser Ser Gln Val Ser Val Leu Ser Tyr Val Pro Arg Asp Lys Glu Ile  
 20 25 30  
 Ala Pro Lys Lys Gln Phe Thr Ile Ala Lys Ile Ser Thr Leu Ala Ile  
 35 40 45  
 Leu Ala Ser Leu Ala Leu Gly Ala Leu Val Ala Gly Ile Ser Leu Thr  
 50 55 60  
 Ile Val Leu Gly Asn Pro Val Phe Leu Ala Leu Ile Thr Thr Ala  
 65 70 75 80  
 Leu Phe Ser Val Val Thr Phe Leu Val Tyr His Gln Met Thr Ser Lys  
 85 90 95  
 Val Ser Ser Asn Trp Gln Lys Val Leu Glu Gln Asn Phe Lys Pro Leu  
 100 105 110  
 Gly Lys Ala Trp Gln Glu Lys Asn Val Asp Cys Xaa Ser Asn Glu Met  
 115 120 125  
 Gln Phe Tyr Asn Asn His Leu Asn Pro Lys Phe Lys Val Ala Ile Gln  
 130 135 140  
 Thr Asp Ala Xaa Gln Pro Phe Gln Pro Thr Phe Leu Thr Gly Leu Arg  
 145 150 155 160  
 Val Ile Glu Lys Asn Gln Ser Thr Gly Ile Ile Phe Asn Pro Val Gly  
 165 170 175  
 Pro Thr Asn Leu Ile Asp Asn Thr Ala Thr Asn Leu Ser Thr Ile Leu  
 180 185 190  
 Tyr Ser Thr Leu Lys Asp Lys Ser Val Trp Asp Thr Cys Lys Gln Arg  
 195 200 205  
 Glu Gly Gly Pro Ala Lys Gly Glu Asp Pro Phe Ser Pro Thr Glu Val  
 210 215 220  
 Arg Val Val Lys Leu Pro Asn Glu Ala Leu Asp Gln Thr Phe Asn Leu  
 225 230 235 240  
 Asn Leu Ser Ser Ala Glu Lys Lys Ser Ile Leu Pro Thr Phe Leu Gly  
 245 250 255  
 His Val Cys Gly Pro Lys Ser Glu Glu Leu Pro Asn Gln Gln Glu Tyr  
 260 265 270  
 Tyr Arg Gln Ala Leu Leu Ala Tyr Glu Asn Cys Leu Lys Ala Ala Ile  
 275 280 285  
 Glu Ser His Ala Ala Ile Val Ala Leu Pro Leu Phe Thr Ser Val Tyr  
 290 295 300  
 Glu Val Pro Pro Glu Glu Ile Leu Pro Lys Glu Gly Thr Phe Tyr Trp  
 305 310 315 320  
 Asp Asn Gln Thr Gln Ala Phe Cys Lys Arg Ala Leu Leu Asp Ala Ile  
 325 330 335  
 Gln Asn Thr Ala Leu Arg Tyr Pro Gln Arg Ser Leu Leu Val Ile Leu  
 340 345 350  
 Gln Asp Pro Phe Asn Thr Ile Glu Ser Gln Ser Arg Ser Glu Glu  
 355 360 365

&lt;210&gt;563

&lt;211&gt;258

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;563

Gly Ile Ile Phe Met His Asp Ala Leu Leu Ser Ile Leu Ala Ile Gln  
 1 5 10 15  
 Glu Leu Asp Ile Lys Met Ile Arg Leu Met Arg Val Lys Lys Glu His  
 20 25 30  
 Gln Lys Glu Leu Ala Lys Val Gln Ser Leu Lys Ser Asp Ile Arg Arg  
 35 40 45  
 Lys Val Gln Glu Lys Glu Leu Glu Met Glu Asn Leu Lys Thr Gln Ile

50 55 60  
 Arg Asp Gly Glu Asn Arg Ile Gln Glu Ile Ser Glu Gln Ile Asn Lys  
 65 70 75 80  
 Leu Glu Asn Gln Gln Ala Ala Val Lys Lys Met Asp Glu Phe Asn Ala  
 85 90 95  
 Leu Thr Gln Glu Met Thr Thr Ala Asn Lys Glu Arg Arg Ser Leu Glu  
 100 105 110  
 His Gln Leu Ser Asp Leu Met Asp Lys Gln Ala Gly Gly Glu Asp Leu  
 115 120 125  
 Ile Val Ser Leu Lys Glu Ser Leu Ala Ser Thr Glu Asn Ser Ser Ser  
 130 135 140  
 Val Ile Glu Lys Glu Ile Phe Glu Ser Ile Lys Lys Ile Asn Glu Glu  
 145 150 155 160  
 Gly Lys Ala Leu Leu Glu Gln Arg Thr Glu Leu Lys His Ala Thr Asn  
 165 170 175  
 Pro Glu Leu Leu Ser Ile Tyr Glu Arg Leu Leu Asn Asn Lys Lys Asp  
 180 185 190  
 Arg Val Val Val Pro Ile Glu Asn Arg Val Cys Ser Gly Cys His Ile  
 195 200 205  
 Val Leu Thr Pro Gln His Glu Asn Leu Val Arg Xaa Lys Asp Arg Leu  
 210 215 220  
 Ile Phe Cys Glu His Cys Ser Arg Ile Leu Tyr Trp Gln Glu Ser Gln  
 225 230 235 240  
 Val Asn Ala Gln Glu Asn Ser Thr Ala Lys Arg Arg Arg Arg Arg Ala  
 245 250 255  
 Ala Val

&lt;210&gt;564

&lt;211&gt;329

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;564

Met Pro Ser Pro Met Ile Ser Thr Asp Val Cys Gln Asp Ile Leu Gly  
 1 5 10 15  
 Lys Gln Lys Glu Ala Val Asp Phe Phe Phe Gln Ala Phe Gln Pro Lys  
 20 25 30  
 Glu Ala Met Gln Leu Ala Glu Lys Ile Leu Gly His Ser Gly Trp Val  
 35 40 45  
 Phe Phe Ser Gly Val Gly Lys Ser Gly Cys Val Ala Arg Lys Leu Val  
 50 55 60  
 Ala Thr Leu Gln Ser Leu Ser Glu Arg Ala Leu Phe Phe Ser Pro Val  
 65 70 75 80  
 Asp Leu Leu His Gly Asp Leu Gly Leu Val Ser Pro Gly Asp Ile Val  
 85 90 95  
 Cys Leu Phe Ser Lys Ser Gly Glu Thr Gln Glu Leu Leu Asp Thr Val  
 100 105 110  
 Pro His Leu Lys Ser Arg Arg Ala Ile Leu Val Ala Ile Thr Ser Met  
 115 120 125  
 Pro Tyr Ser Asn Leu Ala Ala Leu Ser Asp Leu Val Val Ile Leu Pro  
 130 135 140  
 Ser Val Ala Glu Leu Asp Pro Phe Asn Leu Ile Pro Thr Asn Ser Thr  
 145 150 155 160  
 Thr Cys Gln Met Ile Phe Gly Asp Phe Leu Ala Met Leu Leu Phe His  
 165 170 175  
 Ser Arg Gly Val Ser Leu Ser Thr Tyr Gly Lys Asn His Pro Ser Gly  
 180 185 190  
 Gln Val Gly Met Lys Ala Asn Gly Lys Val Lys Asp Phe Met Phe Pro  
 195 200 205  
 Lys Thr Glu Val Pro Phe Cys His Leu Gly Asp Lys Val Ser Phe Ser  
 210 215 220  
 Leu Glu Val Phe Ser Ala Tyr Gly Cys Gly Cys Val Cys Ile Val Asp  
 225 230 235 240  
 Pro Gln Phe Arg Leu Met Gly Ile Phe Thr Asp Gly Asp Leu Arg Arg  
 245 250 255

Ser Leu Ala Ser Tyr Gly Gly Glu Val Leu Ser Leu Ser Leu Glu Lys  
 260 265 270  
 Val Met Thr Ala Asn Pro Arg Cys Ile Thr Glu Asp Ser Asp Ile Ala  
 275 280 285  
 Ile Ala Leu Gln Leu Met Glu Ser Ser Ser Pro Val Ala Val Leu Pro  
 290 295 300  
 Val Leu Asp Asn Glu Glu Asn Arg His Val Thr Gly Leu Leu His Met  
 305 310 315 320  
 His Thr Leu Ala Lys Ala Gly Leu Leu  
 325

&lt;210&gt;565

&lt;211&gt;393

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;565

Met Ile Phe Glu Phe Arg Phe Pro Lys Ile Gly Glu Thr Ser Ser Gly  
 1 5 10 15  
 Gly Ser Ile Val Arg Trp Leu Lys Asn Leu Gly Asp His Val Ala Arg  
 20 25 30  
 Asp Glu Pro Leu Ile Glu Val Ser Thr Asp Lys Ile Ala Thr Glu Leu  
 35 40 45  
 Pro Ser Pro Lys Ala Gly Arg Leu Val Arg Phe Cys Val Asn Glu Gly  
 50 55 60  
 Asp Glu Val Ala Ser Gly Asp Val Leu Gly Leu Ile Glu Leu Glu Glu  
 65 70 75 80  
 Ile Ser Glu Ala Asp Asp Glu Ser Thr Ser Cys Pro Leu Thr Ser Cys  
 85 90 95  
 Glu Thr Lys Ser Glu Ala Gly Ser Ser Ser Ser Ser Val Trp Phe Ser  
 100 105 110  
 Pro Ala Val Leu Ser Leu Ala Gln Arg Glu Gly Ile Gly Leu Asp Asn  
 115 120 125  
 Leu Gln Lys Ile Ala Gly Thr Gly Lys Gly Gly Arg Val Thr Arg Gln  
 130 135 140  
 Asp Leu Glu Ala Tyr Ile Ser Glu Ser Gln Gln Val Ser Ile Pro Glu  
 145 150 155 160  
 Ile Phe Gln Gly Glu Val Asn Arg Ile Pro Met Ser Pro Leu Arg Arg  
 165 170 175  
 Ala Ile Ala Ser Ser Leu Ser Lys Ser Ser Asp Glu Val Pro His Ala  
 180 185 190  
 Ser Leu Val Val Asp Val Asp Val Thr Asp Leu Met Asn Leu Ile Ser  
 195 200 205  
 Gly Glu Arg Gln Arg Phe Leu Asp Thr His Gly Val Lys Leu Thr Ile  
 210 215 220  
 Thr Ser Phe Ile Val Gln Cys Leu Ala Gln Thr Leu Arg Gln Phe Pro  
 225 230 235 240  
 Leu Leu Asn Gly Ser Leu Asp Gly Thr Thr Ile Val Met Lys Lys Ser  
 245 250 255  
 Val Asn Val Gly Val Ala Val Asn Leu Asn Lys Glu Gly Val Val Val  
 260 265 270  
 Pro Val Ile His Asn Cys Gln Asp Arg Gly Leu Val Ser Ile Ala Lys  
 275 280 285  
 Ala Leu Ala Asp Leu Ser Ser Arg Ala Arg Leu Asn Lys Leu Asp Pro  
 290 295 300  
 Ser Glu Val Gln Asp Gly Ser Val Thr Val Thr Asn Phe Gly Met Thr  
 305 310 315 320  
 Gly Ala Leu Ile Gly Met Pro Ile Ile Arg Tyr Pro Glu Val Ala Ile  
 325 330 335  
 Leu Gly Ile Gly Thr Ile Gln Lys Arg Val Val Val Arg Asp Asp Asp  
 340 345 350  
 Ser Leu Ala Ile Arg Lys Met Val Tyr Val Thr Leu Thr Phe Asp His  
 355 360 365  
 Arg Val Leu Asp Gly Ile Tyr Gly Ser Glu Phe Leu Thr Ser Leu Lys  
 370 375 380  
 Asn Arg Leu Glu Ser Val Thr Met Gly



385 390  
 <210>566  
 <211>90  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>566  
 Ala Lys Leu Ser Thr Ala Gly Glu Asn His Thr Glu Glu Leu Leu Glu  
 1 5 10 15  
 Pro Ala Ser Asp Phe Val Ser Gln Glu Val Arg Gly His Glu Val Leu  
 20 25 30  
 Ser Ser Ser Ala Ser Glu Ile Ser Ser Ser Ser Ile Asn Pro Lys Thr  
 35 40 45  
 Ser Pro Glu Ala Thr Ser Ser Pro Ser Leu Thr Gln Lys Arg Thr Ser  
 50 55 60  
 Arg Pro Ala Leu Gly Glu Gly Asn Ser Val Ala Ile Leu Ser Val Asp  
 65 70 75 80  
 Thr Ser Ile Arg Gly Ser Ser Leu Ala Thr  
 85 90  
 <210>567  
 <211>415  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>567  
 Leu Met Lys Leu Trp Met Lys Ile Phe Ile Gly Leu Phe Val Gly Val  
 1 5 10 15  
 Thr Leu Gly Leu Val Leu Glu Asp Lys Ala Ile Phe Phe Lys Pro Ile  
 20 25 30  
 Gly Asp Ile Phe Leu Asn Leu Leu Ser Met Val Val Tyr Pro Leu Val  
 35 40 45  
 Phe Cys Ser Met Val Leu Gly Ile Ala Ser Ile Ser Asp Met Lys Lys  
 50 55 60  
 Leu Gly Arg Ile Gly Ile Lys Ser Val Gly Leu Tyr Leu Gly Thr Thr  
 65 70 75 80  
 Ala Leu Ala Ile Val Ile Gly Leu Cys Phe Ala Trp Ile Phe Ser Pro  
 85 90 95  
 Gly Asn Gly Cys Asp Phe Ala Gln Ala Gln Ser Met Asp Ser Ala Val  
 100 105 110  
 Thr Val Ile Asp Ser Asn Lys Thr Ala Ala Tyr Phe Leu Ser Ile Ile  
 115 120 125  
 Ala Gln Val Phe Pro Ser Asn Pro Val Arg Ser Phe Ala Glu Gly Asn  
 130 135 140  
 Ile Leu Gln Ile Ile Ile Phe Ala Ile Phe Leu Gly Ile Ala Leu Arg  
 145 150 155 160  
 Leu Ser Gly Glu Arg Gly Arg Pro Val Glu Arg Phe Ile Asp Gly Phe  
 165 170 175  
 Ser Glu Ile Met Leu Arg Met Val Asn Met Ile Met Ser Phe Ala Pro  
 180 185 190  
 Tyr Gly Val Gly Ala Ser Met Ala Trp Ile Ser Gly Asn His Gly Leu  
 195 200 205  
 Gly Val Leu Trp Gln Leu Gly Lys Phe Ile Ile Ala Tyr Tyr Leu Ala  
 210 215 220  
 Cys Leu Phe His Ala Thr Leu Val Phe Gly Gly Leu Val Arg Phe Gly  
 225 230 235 240  
 Cys Lys Met Ser Phe Ser Lys Phe Leu Ser Ser Met Met Asp Ala Ile  
 245 250 255  
 Ser Cys Ala Val Ser Thr Ala Ser Ser Ser Ala Thr Leu Pro Val Thr  
 260 265 270  
 Met Arg Cys Val Ser Lys Asn Leu Gly Val Ser Ala Glu Val Ser Gly  
 275 280 285  
 Phe Val Leu Pro Leu Gly Ala Thr Val Asn Met Asn Gly Thr Ala Ile  
 290 295 300  
 Phe Gln Gly Met Ala Ala Val Phe Ile Ala Gln Ala Tyr Asn Cys Pro  
 305 310 315 320  
 Leu Ser Leu Ser Ser Leu Leu Leu Leu Val Val Thr Ala Thr Phe Ser

325 330 335  
 Ala Val Gly Ser Ala Gly Val Pro Gly Gly Gly Met Ile Thr Leu Gly  
 340 345 350  
 Ser Val Leu Ala Ser Val Gly Leu Pro Ile Gln Gly Ile Ala Ile Leu  
 355 360 365  
 Ala Gly Ile Asp Arg Leu Arg Asp Ile Val Gly Thr Pro Met Asn Ile  
 370 375 380  
 Leu Gly Asp Ala Val Val Ala Thr Tyr Val Ala Ser Gly Glu Gly Glu  
 385 390 395 400  
 Leu Ser Pro Tyr Glu Ser Ile Lys Gln Glu Ser Val Glu Thr Thr  
 405 410 415  
 <210>568  
 <211>365  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>568  
 Met Lys Lys Arg Phe Pro Ser Thr Leu Phe Leu Phe Tyr Arg Arg Val  
 1 5 10 15  
 Thr Ile Ala Ile Ser Leu Glu Gly Ile Leu Gly Trp Gly Trp Leu Gly  
 20 25 30  
 Ser Leu Leu Ser Lys Val Phe Ala Phe Leu Val Ala Cys Trp Asn Arg  
 35 40 45  
 Phe Ser Trp Ser Thr Pro Tyr Arg Ala Arg Ser Thr Val Ile Ser Val  
 50 55 60  
 Gly Asn Ile Val Val Gly Ala Gly Lys Thr Pro Thr Val Leu Trp  
 65 70 75 80  
 Leu Ala Glu Ala Leu Arg Leu Arg Gly Tyr Ser Cys Gly Val Leu Ser  
 85 90 95  
 Arg Gly Tyr Lys Ser Gln Ser Ser Arg Gln Lys Lys Leu Thr Val Val  
 100 105 110  
 Asp Ser Lys Val His Ser Ala Ser Tyr Val Gly Asp Glu Pro Leu Leu  
 115 120 125  
 Met Ala Glu Lys Leu Pro Glu Gly Ser Val Trp Val His Lys Asp Arg  
 130 135 140  
 Arg Ile Ser Ala Ala Arg Ala Ala Glu Lys Phe Gly Ile Leu Leu Leu  
 145 150 155 160  
 Asp Asp Gly Leu Gln Tyr Arg Lys Leu His Lys Asp Val Glu Ile Ala  
 165 170 175  
 Val Val Asn Gly Gln Asp Pro Leu Gly Gly Arg Ala Phe Phe Pro Lys  
 180 185 190  
 Gly Arg Leu Arg Asp Phe Pro Leu Arg Leu Lys Thr Val Asp Ala Ile  
 195 200 205  
 Ile Val Asn Gly Gly Gly Lys Glu Ala Gly Thr Val Val Lys Arg Val  
 210 215 220  
 Ser Asn Ala Pro Gln Ile Phe Val Lys Pro Thr Ile Ala Ser Val Val  
 225 230 235 240  
 Trp Thr His Asn Gly Glu Arg Ile Pro Lys Glu Ala Leu Arg Glu Leu  
 245 250 255  
 Arg Val Gly Val Phe Cys Gly Leu Gly Phe Pro Gln Gly Phe Leu Asn  
 260 265 270  
 Met Leu Arg Glu Glu Gly Ile His Ile Leu Gly Lys Tyr Leu Leu Pro  
 275 280 285  
 Asp His Ala Ala Ile Thr Lys Lys Glu Leu Asn Tyr Phe Cys Gln Gln  
 290 295 300  
 Met Ala Met Arg Gln Gly Gln Gly Leu Leu Cys Thr Glu Lys Asp Ser  
 305 310 315 320  
 Val Lys Leu Pro Arg Leu Ser Gly Glu Val Ser Leu Leu Pro Ile Ala  
 325 330 335  
 Lys Val Glu Met Arg Leu Ser Val Asn Gln Asp Asp Thr Leu Ser Leu  
 340 345 350  
 Leu Asn Met Ile Glu Gln Ile His Lys Asn Arg Gly Asn  
 355 360 365  
 <210>569  
 <211>287

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;569

Val Val Leu Trp Gly Lys Phe Leu Trp Arg Arg Cys Gly Ser Leu Ala  
 1 5 10 15  
 Phe Trp Glu Phe Cys Ser Met Asp Cys Ile Gly Lys His Asn Pro Leu  
 20 25 30  
 Val Lys Glu Ala Leu Ala Leu Lys Arg Ser Arg Cys Arg Lys Ser Ser  
 35 40 45  
 Trp Phe Leu Val Glu Gly Ala Arg Glu Ile Gln Lys Ala Leu Arg Thr  
 50 55 60  
 Gly Tyr Leu Cys Gln His Val Phe Cys Ser Thr His Leu Ser Glu Lys  
 65 70 75 80  
 Glu Lys Glu Phe Leu Tyr Glu Leu Lys Arg Asn Ser Thr Lys Ile Leu  
 85 90 95  
 Tyr Cys Leu Asp Ser Thr Leu Ala Gln Leu Ser Phe Lys Glu His His  
 100 105 110  
 Asp Ser Phe Val Ala Val Ile Gln Lys Arg Val Trp Asn Lys Glu Asp  
 115 120 125  
 Phe Leu Ile Gln Arg Lys Asn Ala Gln Pro Phe Tyr Leu Ile Ile Glu  
 130 135 140  
 Gln Val Glu Lys Pro Gly Asn Val Gly Ala Ile Leu Arg Ile Ala Asp  
 145 150 155 160  
 Gly Ala Gly Val Asp Gly Val Ile Leu Cys Asn Pro Ile Val Asp Leu  
 165 170 175  
 Tyr Asn Pro Asn Val Val Arg Ser Ser Leu Gly Ala Val Phe Ser Leu  
 180 185 190  
 Pro Ile Leu Ser Ile Ser Arg Glu Glu Gly Lys Glu Leu Phe Lys Gln  
 195 200 205  
 Glu Gly Trp Thr Val Phe Val Thr Ser Pro Arg Ala Glu Thr Met Tyr  
 210 215 220  
 Phe Ser Lys Asn Tyr Leu Gly Pro Thr Ala Leu Val Phe Gly Ser Glu  
 225 230 235 240  
 Lys Asp Gly Leu Thr Glu Asp Trp Phe Ser Glu Asp Phe Ser Glu Ile  
 245 250 255  
 Ala Leu Pro Met Leu Gly Glu Ser Asp Ser Leu Asn Leu Ala Thr Ser  
 260 265 270  
 Val Ala Ala Val Ala Tyr Glu Val Val Arg Gln Arg Trp Val Asn  
 275 280 285

&lt;210&gt;570

&lt;211&gt;321

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;570

Asp Ser Ser Lys Asp Asp Phe Arg Lys Glu Lys Gly Arg Arg Lys Ser  
 1 5 10 15  
 Gln Tyr Arg Asp Arg Tyr Val Asn Lys Asp Thr Gly Arg His Ser Lys  
 20 25 30  
 Thr Tyr Phe Ser Leu Ile Arg Glu Arg Leu Val Met Asp Tyr Lys Leu  
 35 40 45  
 Leu Asp Ser Gly Asp Gly Asn Lys Leu Glu Cys Phe Gly Pro Val Thr  
 50 55 60  
 Leu Ile Arg Pro Ser Ser Ile Ala Val Trp Pro Lys Ser Arg Pro Glu  
 65 70 75 80  
 Leu Trp Ser Gln Ala Gln Leu Gln Tyr Val Arg Glu Gly Glu Arg Gly  
 85 90 95  
 Ala Trp Lys Asn Phe Lys Arg Leu Pro Glu Glu Trp Glu Val Ala Phe  
 100 105 110  
 Ser Asp Val Arg Cys Leu Leu Lys Arg Thr Pro Phe Gly His Leu Gly  
 115 120 125  
 Val Phe Pro Glu His Met Gly Phe Trp Pro Ala Leu Lys Gln Ala Ile  
 130 135 140  
 Glu Lys His Lys Glu Arg Gln Val Leu Asn Leu Phe Ala Tyr Thr Gly  
 145 150 155 160

Ala Gly Ser Ile Phe Ala Ala Lys Cys Gly Ala Arg Val Thr His Val  
 165 170 175  
 Asp Ala Ser Gln Ala Ala Val Arg Trp Ala Gln Arg Asn Val Glu Lys  
 180 185 190  
 Asn Ala Phe Pro Glu Arg Arg Ile Phe Trp Val Ile Glu Asp Val Ile  
 195 200 205  
 Ser Phe Leu Lys Lys Glu Ile Arg Arg Asn Lys Lys Tyr Gln Val Ile  
 210 215 220  
 Leu Leu Asp Pro Pro Ser Tyr Gly Arg Gly Pro Asp Gly Glu Val Phe  
 225 230 235 240  
 Lys Ile Asp Lys Asp Leu Phe Pro Leu Leu Ser Leu Cys Ser Lys Leu  
 245 250 255  
 Leu Ala Asp Asp Ala Ser Tyr Phe Leu Leu Thr Ser His Thr Pro Gly  
 260 265 270  
 His Thr Pro Glu Phe Leu Arg Ala Ile Ala Arg Arg Arg Cys Gln Pro  
 275 280 285  
 Leu Phe Leu Lys Arg Gly Leu Val Gly Lys Val Phe Val Glu Lys Val  
 290 295 300  
 Trp Glu Pro Cys Leu Leu Gly Val Leu Phe Asn Gly Leu His Arg Glu  
 305 310 315 320  
 Thr

&lt;210&gt;571

&lt;211&gt;200

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;571

Met Phe Ser Gly Ile Ile Gln Glu Leu Gly Glu Val Cys Phe Phe Glu  
 1 5 10 15  
 Ala Gln Gly Asn Gly Leu Ser Leu Gly Ile Lys Ser Thr Pro Leu Phe  
 20 25 30  
 Val Thr Pro Leu Val Thr Gly Asp Ser Val Ala Val Asp Gly Val Cys  
 35 40 45  
 Leu Thr Leu Thr Ser Cys Asn Glu Ser Lys Ile Phe Phe Asp Val Ile  
 50 55 60  
 Pro Glu Thr Leu Ala Cys Thr Thr Leu Gly Glu Lys Arg Cys Ser Asp  
 65 70 75 80  
 Gln Val Asn Leu Glu Ala Ala Leu Lys Met Gly Asp Ser Ile Gly Gly  
 85 90 95  
 His Leu Leu Ser Gly His Val Phe Gly Thr Ala Glu Ile Phe Leu Ile  
 100 105 110  
 Lys Glu Asn Arg Tyr Tyr Phe Arg Gly Ser Lys Glu Leu Ser Gln Tyr  
 115 120 125  
 Leu Phe Glu Lys Gly Phe Ile Ala Ile Asp Gly Val Ser Leu Thr Leu  
 130 135 140  
 Val Ser Val Asp Ser Asp Thr Phe Ser Val Gly Leu Ile Pro Glu Thr  
 145 150 155 160  
 Leu Gln Arg Thr Thr Leu Gly Lys Lys Arg Glu Gly Glu Arg Val Asn  
 165 170 175  
 Ile Glu Ile Asp Met Ser Thr Lys Ile Gln Val Asp Thr Val Lys Arg  
 180 185 190  
 Ile Leu Ala Ser Ser Gly Lys Asp  
 195 200

&lt;210&gt;572

&lt;211&gt;152

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;572

Met Gln Cys Pro Phe Cys Asn His Gly Glu Leu Lys Val Ile Asp Ser  
 1 5 10 15  
 Arg Asn Ala Pro Glu Ala Asn Ala Ile Lys Arg Arg Arg Glu Cys Leu  
 20 25 30  
 Lys Cys Ser Gln Arg Phe Thr Thr Phe Glu Thr Val Glu Leu Thr Leu  
 35 40 45

Gln Val Leu Lys Arg Asp Gly Arg Tyr Glu Asn Phe Gln Glu Ser Lys  
 50 55 60  
 Leu Ile His Gly Leu Asn Ala Ala Ser Ser His Thr Arg Ile Gly Gln  
 65 70 75 80  
 Asp Gln Val His Ala Ile Ala Ser Asn Val Lys Ser Glu Leu Leu Gly  
 85 90 95  
 Lys Gln Asn Arg Glu Ile Ser Thr Lys Glu Ile Gly Glu Leu Val Met  
 100 105 110  
 Lys Tyr Leu Lys Lys Ala Asp Met Ile Ala Tyr Ile Arg Phe Ala Cys  
 115 120 125  
 Val Tyr Arg Arg Phe Lys Asp Val Gly Glu Leu Met Glu Val Leu Leu  
 130 135 140  
 Ser Ala Thr Pro Asp Met Glu Lys  
 145 150

&lt;210&gt;573

&lt;211&gt;132

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;573

Leu Asn Phe Ile Arg Ser Lys Val Val Pro Leu Ser Asp Asp Glu Ile  
 1 5 10 15  
 Glu Gln Phe Lys Lys Arg Leu Leu Glu Met Lys Ala Lys Leu Ser His  
 20 25 30  
 Thr Leu Glu Gly Asn Ala Gln Glu Val Lys Lys Pro Asn Glu Ala Thr  
 35 40 45  
 Gly Tyr Ser Gln His Gln Ala Asp Gln Gly Thr Asp Thr Phe Asp Arg  
 50 55 60  
 Thr Ile Ser Leu Glu Val Thr Thr Lys Glu Tyr Glu Leu Leu Arg Gln  
 65 70 75 80  
 Ile Asn Arg Ala Leu Glu Lys Ile Asn Glu Ser Ser Tyr Gly Ile Cys  
 85 90 95  
 Asp Val Ser Gly Glu Glu Ile Pro Leu Ala Arg Leu Ile Ala Ile Pro  
 100 105 110  
 Tyr Ala Thr Met Thr Val Lys Ala Gln Glu Gln Phe Glu Lys Gly Leu  
 115 120 125  
 Leu Ser Gly Asn  
 130

&lt;210&gt;574

&lt;211&gt;168

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;574

Met Ala Thr Arg Phe Arg Ser Thr Leu Leu Val Ile Thr Leu Phe Val  
 1 5 10 15  
 Leu Ile Asp Trp Val Thr Lys Leu Val Val Leu Leu Gln Tyr Lys Asp  
 20 25 30  
 Leu Gln Ile Leu Thr His Pro Thr Leu Tyr Thr His Ser Trp Gly Arg  
 35 40 45  
 Phe Ser Phe Ser Ile Ala Pro Val Phe Asn Glu Gly Ala Ala Phe Gly  
 50 55 60  
 Leu Phe Ser Asn Tyr Lys Tyr Phe Leu Phe Leu Leu Arg Ile Phe Val  
 65 70 75 80  
 Ile Leu Gly Leu Leu Ala Tyr Leu Phe Phe Lys Lys Lys Ser Ile Gln  
 85 90 95  
 Ser Thr Thr Gln Thr Ala Leu Val Leu Leu Cys Ala Gly Ala Ile Gly  
 100 105 110  
 Asn Val Gly Asp Ile Ile Phe Tyr Gly His Ile Val Asp Phe Ile Ser  
 115 120 125  
 Phe Asn Tyr Lys Gln Trp Ala Phe Pro Thr Phe Asn Val Ala Asp Val  
 130 135 140  
 Leu Ile Ser Leu Gly Thr Leu Leu Leu Val Tyr Lys Phe Tyr Phe Pro  
 145 150 155 160  
 Thr Lys Gln Thr Glu Lys Lys Arg  
 165

&lt;210&gt;575

&lt;211&gt;449

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;575

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Met Asn Arg Leu Leu Ser Leu Leu Ser Val Phe Asp Asp Phe Phe Trp
 1           5           10           15
Ser Tyr Val Ala Phe Ile Leu Ile Ile Val Leu Gly Val Ser Phe Ser
          20           25           30
Trp Lys Ser Arg Phe Phe Gln Phe Thr Lys Phe Ser Gln Phe Cys Lys
          35           40           45
Leu Phe Arg Tyr Tyr Ser Gln Asn Pro Gln Glu Arg Glu Thr Lys Gln
          50           55           60
Gly Val His Pro Leu Lys Val Phe Phe Ala Ser Ala Gly Gly Asn Ile
 65           70           75           80
Gly Ile Gly Asn Val Val Gly Ile Val Thr Ala Ala Cys Ile Gly Gly
          85           90           95
Pro Gly Ala Leu Phe Trp Val Trp Ile Ala Gly Ile Phe Gly Ser Ile
          100          105          110
Val Lys Tyr Ser Glu Val Tyr Leu Gly Ile Lys Phe Arg Lys Leu Asp
          115          120          125
Arg Asp Gly Val Tyr Gln Gly Gly Pro Met Tyr Phe Leu Ile Lys Ala
 130          135          140
Phe Lys Thr Pro Val Val Ser Val Ile Val Ala Ile Leu Leu Cys Ile
 145          150          155          160
Tyr Gly Val Glu Ile Tyr Gln Phe Ser Val Ile Thr Asp Ser Leu Ala
          165          170          175
His Cys Trp Asn Leu Pro Lys Val Tyr Pro Met Leu Gly Leu Leu Phe
          180          185          190
Leu Val Phe Tyr Ala Ile Arg Gly Gly Leu Gln Arg Ile Gly Lys Ile
          195          200          205
Cys Ser Ile Val Leu Pro Phe Phe Met Leu Leu Tyr Cys Ala Leu Ser
 210          215          220
Leu Tyr Ile Leu Val Lys Glu Phe His Thr Leu Pro His Leu Leu Ser
 225          230          235          240
Thr Val Phe Ser Ser Ala Phe Lys Gly Gln Ser Ala Leu Gly Gly Phe
          245          250          255
Ala Gly Cys Thr Val Ala Thr Thr Ile His Gln Gly Ile Ser Arg Ala
          260          265          270
Ala Tyr Ser Gly Asp Ile Gly Ile Gly Phe Asp Ser Ile Ile Gln Ser
          275          280          285
Glu Ser Ser Ala Lys Asp Pro Ser Thr Gln Ala Gln Leu Ser Ile Val
          290          295          300
Gly Ile Ala Ile Asp Asn Leu Ile Cys Thr Leu Ser Leu Leu Met Val
 305          310          315          320
Leu Ala Ser Gly Ser Trp Ser Leu Gly Leu Glu Asn Ala Ser Gln Val
          325          330          335
Val Glu His Thr Leu Ala Ser Tyr Phe Pro Met Val Lys Phe Phe Leu
          340          345          350
Pro Thr Phe Phe Phe Val Thr Gly Tyr Thr Thr Ile Ile Ser Tyr Phe
          355          360          365
Leu Val Gly Lys Lys Cys Ala Lys Phe Leu Tyr Gly Asn Thr Gly Ala
 370          375          380
Lys Ile Tyr Thr Leu Tyr Gly Leu Leu Ile Leu Pro Leu Phe Cys Phe
 385          390          395          400
Leu Ser Gln Asn Thr Ala Leu Leu Ile Met Ser Val Ser Gly Ala Leu
          405          410          415
Leu Leu Cys Phe Asn Leu Leu Gly Val Phe Ile Leu Arg Lys Glu Val
          420          425          430
Ile Phe Pro Ala Arg Ala Ala Ser Leu Thr Glu Thr Ser Leu Ser Thr
          435          440          445
Glu

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&lt;210&gt;576

&lt;211&gt;232

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;576

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Leu Ile Phe Leu Leu Phe Met Asp Asn Tyr Leu Leu Gly Ser Leu Ile
 1           5           10           15
Phe Cys Cys Val Leu Leu Ser Ile Gly Met Cys Thr Ile Phe Val Met
           20           25           30
Thr Ile Cys Phe Leu Arg Gln Leu Asn Lys Ile Leu Lys Asn Ile His
           35           40           45
Arg Val Thr Thr Ile Leu Asn Phe Glu Ala Lys Ile Leu Ala Pro Leu
           50           55           60
Met Leu Gly Lys Lys Leu Leu Cys Gly Trp Leu Lys Lys Arg Lys Asn
           65           70           75           80
Arg Gly Ser Leu Ser Glu Asp Ile Asp Glu Leu Leu Asp Glu Lys Lys
           85           90           95
Gln Arg Ser Trp Lys Lys Asn Leu Asp Gln Gly Ile Lys Trp Cys Ala
           100          105          110
His Trp Ser Ser Phe Gly Lys Cys Phe Val Ile Lys Ile Lys Thr Leu
           115          120          125
Arg Asp Ile Val Met Phe Arg Asn Asn His Lys Pro Lys Lys Thr Lys
           130          135          140
Cys Lys Arg Phe Arg Trp Leu Arg Gly Val Leu Phe Gly Gly Phe Ile
           145          150          155          160
Ala Thr Leu Leu Thr Cys Leu Phe Thr Pro Lys Ser Gly Val Gln Leu
           165          170          175
Arg Lys Lys Ile Leu Lys Val Lys Asn Ser Gly Ala Lys Lys Ser Arg
           180          185          190
Val Phe Phe Lys Asn Ser Lys Gln His Thr Lys Ser Phe Val Lys Gln
           195          200          205
Ala Lys Leu Leu Ala Lys Asn Ile Ser His Glu Leu Gln Asp Phe Lys
           210          215          220
Lys Gly Ile Leu Asp Asp Lys Asp
           225          230

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&lt;210&gt;577

&lt;211&gt;308

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;577

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Gly Tyr Asn Leu Leu Gly Leu Arg His Met Lys Gln Met Arg Leu Trp
 1           5           10           15
Gly Phe Leu Phe Leu Ser Ser Phe Cys Gln Val Ser Tyr Leu Arg Ala
           20           25           30
Asn Asp Val Leu Leu Pro Leu Ser Gly Ile His Ser Gly Glu Asp Leu
           35           40           45
Glu Leu Phe Thr Leu Arg Ser Ser Ser Pro Thr Lys Thr Thr Tyr Ser
           50           55           60
Leu Arg Lys Asp Phe Ile Val Cys Asp Phe Ala Gly Asn Ser Ile His
           65           70           75           80
Lys Pro Gly Ala Ala Phe Leu Asn Leu Lys Gly Asp Leu Phe Phe Ile
           85           90           95
Asn Ser Thr Pro Leu Ala Ala Leu Thr Phe Lys Asn Ile His Leu Gly
           100          105          110
Ala Arg Gly Ala Gly Leu Phe Ser Glu Ser Asn Val Thr Phe Lys Gly
           115          120          125
Leu His Ser Leu Val Leu Glu Asn Asn Glu Ser Trp Gly Gly Val Leu
           130          135          140
Thr Thr Ser Gly Asp Leu Ser Phe Ile Asn Asn Thr Ser Val Leu Cys
           145          150          155          160
Gln Asn Asn Ile Ser Tyr Gly Pro Gly Gly Ala Leu Leu Leu Gln Gly
           165          170          175
Arg Lys Ser Lys Ala Leu Phe Phe Arg Asp Asn Arg Gly Thr Ile Leu
           180          185          190
Phe Leu Lys Asn Lys Ala Val Asn Gln Asp Glu Ser His Pro Gly Tyr

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195 200 205  
 Gly Gly Ala Val Ser Ser Ile Ser Pro Gly Ser Pro Ile Thr Phe Ala  
 210 215 220  
 Asp Asn Gln Glu Ile Leu Phe Gln Glu Asn Glu Gly Glu Leu Gly Gly  
 225 230 235 240  
 Ala Ile Tyr Asn Asp Gln Gly Ala Ile Thr Phe Glu Asn Asn Phe Gln  
 245 250 255  
 Thr Thr Ser Phe Phe Ser Asn Lys Ala Ser Phe Gly Gly Ala Val Tyr  
 260 265 270  
 Ser Arg Tyr Cys Asn Leu Tyr Ser Gln Trp Gly Asp Thr Leu Phe Thr  
 275 280 285  
 Lys Asn Ala Ala Ala Lys Val Gly Gly His Pro Cys Gly Leu Cys Ser  
 290 295 300  
 Tyr Lys Arg Leu  
 305  
 <210>578  
 <211>660  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>578  
 Ala Asp Ile His Ala Asp Tyr Val His Ile Arg Asp Cys Lys Gly Ser  
 1 5 10 15  
 Ile Val Phe Glu Asn Ser Ala Thr Ala Gly Gly Ala Ile Ala Val  
 20 25 30  
 Asn Ala Val Cys Asp Ile Asn Ala Gln Gly Pro Val Arg Phe Ile Asn  
 35 40 45  
 Asn Ser Ala Leu Gly Leu Asn Gly Gly Ala Ile Tyr Met Gln Ala Thr  
 50 55 60  
 Gly Ser Ile Leu Arg Leu His Ala Asn Gln Gly Asp Ile Glu Phe Cys  
 65 70 75 80  
 Gly Asn Lys Val Arg Ser Gln Phe His Ser His Ile Asn Ser Thr Ser  
 85 90 95  
 Asn Phe Thr Asn Asn Ala Ile Thr Ile Gln Gly Ala Pro Arg Glu Phe  
 100 105 110  
 Ser Leu Ser Ala Asn Glu Gly His Arg Ile Cys Phe Tyr Asp Pro Ile  
 115 120 125  
 Ile Ser Ala Thr Glu Asn Tyr Asn Ser Leu Tyr Ile Asn His Gln Arg  
 130 135 140  
 Leu Leu Glu Ala Gly Gly Ala Val Ile Phe Ser Gly Ala Arg Leu Ser  
 145 150 155 160  
 Pro Glu His Lys Lys Glu Asn Lys Asn Lys Thr Ser Ile Ile Asn Gln  
 165 170 175  
 Pro Val Arg Leu Cys Ser Gly Val Leu Ser Ile Glu Gly Gly Ala Ile  
 180 185 190  
 Leu Ala Val Arg Ser Phe Tyr Gln Glu Gly Gly Leu Leu Ala Leu Gly  
 195 200 205  
 Pro Gly Ser Lys Leu Thr Thr Gln Gly Lys Asn Ser Glu Lys Asp Lys  
 210 215 220  
 Ile Val Ile Thr Asn Leu Gly Phe Asn Leu Glu Asn Leu Asp Ser Ser  
 225 230 235 240  
 Asp Pro Ala Glu Ile Arg Ala Thr Glu Lys Ala Ser Ile Glu Ile Ser  
 245 250 255  
 Gly Val Pro Arg Val Tyr Gly His Thr Glu Ser Phe Tyr Glu Asn His  
 260 265 270  
 Glu Tyr Ala Ser Lys Pro Tyr Thr Thr Ser Ile Ile Leu Ser Ala Lys  
 275 280 285  
 Lys Leu Val Thr Ala Pro Ser Arg Pro Glu Lys Asp Ile Gln Asn Leu  
 290 295 300  
 Ile Ile Ala Glu Ser Glu Tyr Met Gly Tyr Gly Tyr Gln Gly Ser Trp  
 305 310 315 320  
 Glu Phe Ser Trp Ser Pro Asn Asp Thr Lys Glu Lys Lys Thr Ile Ile  
 325 330 335  
 Ala Ser Trp Thr Pro Thr Gly Glu Phe Ser Leu Asp Pro Lys Arg Arg  
 340 345 350



Gly Ser Phe Ile Pro Thr Thr Leu Trp Ser Thr Phe Ser Gly Leu Asn  
 355 360 365  
 Ile Ala Ser Asn Ile Val Asn Asn Asn Tyr Leu Asn Asn Ser Glu Val  
 370 375 380  
 Ile Pro Leu Gln His Leu Cys Val Phe Gly Gly Pro Val Tyr Gln Ile  
 385 390 395 400  
 Met Glu Gln Asn Pro Lys Gln Ser Ser Asn Asn Leu Leu Val Gln His  
 405 410 415  
 Ala Gly His Asn Val Gly Ala Arg Ile Pro Phe Ser Phe Asn Thr Ile  
 420 425 430  
 Leu Ser Ala Ala Leu Thr Gln Leu Phe Ser Ser Ser Ser Gln Gln Asn  
 435 440 445  
 Val Ala Asp Lys Ser His Ala Gln Ile Leu Ile Gly Thr Val Ser Leu  
 450 455 460  
 Asn Lys Ser Trp Gln Ala Leu Ser Leu Arg Ser Ser Phe Ser Tyr Thr  
 465 470 475 480  
 Glu Asp Ser Gln Val Met Lys His Val Phe Pro Tyr Lys Gly Thr Ser  
 485 490 495  
 Arg Gly Ser Trp Arg Asn Tyr Gly Trp Ser Gly Ser Val Gly Met Ser  
 500 505 510  
 Tyr Ala Tyr Pro Lys Gly Ile Arg Tyr Leu Lys Met Thr Pro Phe Val  
 515 520 525  
 Asp Leu Gln Tyr Thr Lys Leu Val Gln Asn Pro Phe Val Glu Thr Gly  
 530 535 540  
 Tyr Asp Pro Arg Tyr Phe Ser Ser Ser Glu Met Thr Asn Leu Ser Leu  
 545 550 555 560  
 Pro Ile Gly Ile Ala Leu Glu Met Arg Phe Ile Gly Ser Arg Ser Ser  
 565 570 575  
 Leu Phe Leu Gln Val Ser Thr Ser Tyr Ile Lys Asp Leu Arg Arg Val  
 580 585 590  
 Asn Pro Gln Ser Ser Ala Ser Leu Val Leu Asn His Tyr Thr Trp Asp  
 595 600 605  
 Ile Gln Gly Val Pro Leu Gly Lys Glu Ala Leu Asn Ile Thr Leu Asn  
 610 615 620  
 Ser Thr Ile Lys Tyr Lys Ile Val Thr Ala Tyr Met Gly Ile Ser Ser  
 625 630 635 640  
 Thr Gln Arg Glu Gly Ser Asn Leu Ser Ala Asn Ala His Ala Gly Leu  
 645 650 655  
 Ser Leu Ser Phe  
 660

&lt;210&gt;579

&lt;211&gt;609

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;579

Phe Ile His Leu Ile Tyr Leu Ser Leu Ile Glu Phe Val Asn Ile Ser  
 1 5 10 15  
 Asp Arg Phe Ser Ser Met Lys Trp Leu Pro Ala Thr Ala Val Phe Ala  
 20 25 30  
 Ala Val Leu Pro Ala Leu Thr Ala Phe Gly Asp Pro Ala Ser Val Glu  
 35 40 45  
 Ile Ser Thr Ser His Thr Gly Ser Gly Asp Pro Thr Ser Asp Ala Ala  
 50 55 60  
 Leu Thr Gly Phe Thr Gln Ser Ser Thr Glu Thr Asp Gly Thr Thr Tyr  
 65 70 75 80  
 Thr Ile Val Gly Asp Ile Thr Phe Ser Thr Phe Thr Asn Ile Pro Val  
 85 90 95  
 Pro Val Val Thr Pro Asp Ala Asn Asp Ser Ser Ser Asn Ser Ser Lys  
 100 105 110  
 Gly Gly Ser Ser Ser Ser Gly Ala Thr Ser Leu Ile Arg Ser Ser Asn  
 115 120 125  
 Leu His Ser Asp Phe Asp Phe Thr Lys Asp Ser Val Leu Asp Leu Tyr  
 130 135 140  
 His Leu Phe Phe Pro Ser Ala Ser Asn Thr Leu Asn Pro Ala Leu Leu

|                 |   |     |     |     |     |     |
|-----------------|---|-----|-----|-----|-----|-----|
| 145             |   | 150 |     | 155 |     | 160 |
| Ser Ser Ser Ser | Ser Gly Gly Ser Ser Ser Ser Ser Ser Ser         |     |     |     |     |     |
|                 | 165   |     | 170 |     | 175 |     |
| Ser Gly Ser Ala | Ser Ala Val Val Ala Ala Asp Pro Lys Gly Gly Ala |     |     |     |     |     |
|                 | 180   |     | 185 |     | 190 |     |
| Ala Phe Tyr Ser | Asn Glu Ala Asn Gly Thr Leu Thr Phe Thr Thr Asp |     |     |     |     |     |
|                 | 195   |     | 200 |     | 205 |     |
| Ser Gly Asn Pro | Gly Ser Leu Thr Leu Gln Asn Leu Lys Met Thr Gly |     |     |     |     |     |
|                 | 210   |     | 215 |     | 220 |     |
| Asp Gly Ala Ala | Ile Tyr Ser Lys Gly Pro Leu Val Phe Thr Gly Leu |     |     |     |     |     |
|                 | 225   |     | 230 |     | 235 |     |
| Lys Asn Leu Thr | Phe Thr Gly Asn Glu Ser Gln Lys Ser Gly Gly Ala |     |     |     |     |     |
|                 | 245   |     | 250 |     | 255 |     |
| Ala Tyr Thr Glu | Gly Ala Leu Thr Thr Gln Ala Ile Val Glu Ala Val |     |     |     |     |     |
|                 | 260   |     | 265 |     | 270 |     |
| Thr Phe Thr Gly | Asn Thr Ser Ala Gly Gln Gly Gly Ala Ile Tyr Val |     |     |     |     |     |
|                 | 275   |     | 280 |     | 285 |     |
| Lys Glu Ala Thr | Leu Phe Asn Ala Leu Asp Ser Leu Lys Phe Glu Lys |     |     |     |     |     |
|                 | 290   |     | 295 |     | 300 |     |
| Asn Thr Ser Gly | Gln Ala Gly Gly Gly Ile Tyr Thr Glu Ser Thr Leu |     |     |     |     |     |
|                 | 305   |     | 310 |     | 315 |     |
| Thr Ile Ser Asn | Ile Thr Lys Ser Ile Glu Phe Ile Ser Asn Lys Ala |     |     |     |     |     |
|                 | 325   |     | 330 |     | 335 |     |
| Ser Val Pro Ala | Pro Ala Pro Glu Pro Thr Ser Pro Ala Pro Ser Ser |     |     |     |     |     |
|                 | 340   |     | 345 |     | 350 |     |
| Leu Ile Asn Ser | Thr Thr Ile Asp Thr Ser Thr Leu Gln Thr Arg Ala |     |     |     |     |     |
|                 | 355   |     | 360 |     | 365 |     |
| Ala Ser Ala Thr | Pro Ala Val Ala Pro Val Ala Ala Val Thr Pro Thr |     |     |     |     |     |
|                 | 370   |     | 375 |     | 380 |     |
| Pro Ile Ser Thr | Gln Glu Thr Ala Gly Asn Gly Gly Ala Ile Tyr Ala |     |     |     |     |     |
|                 | 385   |     | 390 |     | 395 |     |
| Lys Gln Gly Ile | Ser Ile Ser Thr Phe Lys Asp Leu Thr Phe Lys Ser |     |     |     |     |     |
|                 | 405   |     | 410 |     | 415 |     |
| Asn Ser Ala Ser | Val Asp Ala Thr Leu Thr Val Asp Ser Ser Thr Ile |     |     |     |     |     |
|                 | 420   |     | 425 |     | 430 |     |
| Gly Glu Ser Gly | Gly Ala Ile Phe Ala Ala Asp Ser Ile Gln Ile Gln |     |     |     |     |     |
|                 | 435   |     | 440 |     | 445 |     |
| Gln Cys Thr Gly | Thr Thr Leu Phe Ser Gly Asn Thr Ala Asn Lys Ser |     |     |     |     |     |
|                 | 450   |     | 455 |     | 460 |     |
| Gly Gly Gly Ile | Tyr Ala Val Gly Gln Val Thr Leu Glu Asp Ile Ala |     |     |     |     |     |
|                 | 465   |     | 470 |     | 475 |     |
| Asn Leu Lys Met | Thr Asn Asn Thr Cys Lys Gly Glu Gly Gly Ala Ile |     |     |     |     |     |
|                 | 485   |     | 490 |     | 495 |     |
| Tyr Thr Lys Lys | Ala Leu Thr Ile Asn Asn Gly Ala Ile Leu Thr Thr |     |     |     |     |     |
|                 | 500   |     | 505 |     | 510 |     |
| Phe Ser Gly Asn | Thr Ser Thr Asp Asn Gly Gly Ala Ile Phe Ala Val |     |     |     |     |     |
|                 | 515   |     | 520 |     | 525 |     |
| Gly Gly Ile Thr | Leu Ser Asp Leu Val Glu Val Arg Phe Ser Lys Asn |     |     |     |     |     |
|                 | 530   |     | 535 |     | 540 |     |
| Lys Thr Gly Asn | Tyr Ser Ala Pro Ile Thr Lys Ala Ala Ser Asn Thr |     |     |     |     |     |
|                 | 545   |     | 550 |     | 555 |     |
| Ala Pro Val Val | Ser Ser Ser Thr Thr Ala Ala Ser Pro Ala Val Pro |     |     |     |     |     |
|                 | 565   |     | 570 |     | 575 |     |
| Ala Ala Ala Ala | Pro Val Thr Asn Ala Ala Lys Gly Gly Ala Leu     |     |     |     |     |     |
|                 | 580   |     | 585 |     | 590 |     |
| Tyr Ser Thr Glu | Gly Leu Thr Val Ser Gly Ile Thr Ser Xaa Ile Val |     |     |     |     |     |
|                 | 595   |     | 600 |     | 605 |     |
| Val             |   |     |     |     |     |     |

&lt;210&gt;580

&lt;211&gt;1146

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;580

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Leu Tyr Leu Glu Ser His Arg Xaa Leu Ser Phe Glu Asn Asn Glu Cys
 1           5           10           15
Gln Asn Gln Gly Gly Gly Ala Tyr Val Thr Lys Thr Phe Gln Cys Ser
 20           25           30
Asp Ser His Arg Leu Gln Phe Thr Ser Asn Lys Ala Ala Asp Glu Gly
 35           40           45
Gly Gly Leu Tyr Cys Gly Asp Asp Val Thr Leu Thr Asn Leu Thr Gly
 50           55           60
Lys Thr Leu Phe Gln Glu Asn Ser Ser Glu Lys His Gly Gly Gly Leu
 65           70           75           80
Ser Leu Ala Ser Gly Lys Ser Leu Thr Met Thr Ser Leu Glu Ser Phe
 85           90           95
Cys Leu Asn Ala Asn Thr Ala Lys Glu Asn Gly Gly Gly Ala Asn Val
 100          105          110
Pro Glu Asn Ile Val Leu Thr Phe Thr Tyr Thr Pro Thr Pro Asn Glu
 115          120          125
Pro Ala Pro Val Gln Gln Pro Val Tyr Gly Glu Ala Leu Val Thr Gly
 130          135          140
Asn Thr Ala Thr Lys Ser Gly Gly Gly Ile Tyr Thr Lys Asn Ala Ala
 145          150          155          160
Phe Ser Asn Leu Ser Ser Val Thr Phe Asp Gln Asn Thr Ser Ser Glu
 165          170          175
Asn Gly Gly Ala Leu Leu Thr Gln Lys Ala Ala Asp Lys Thr Asp Cys
 180          185          190
Ser Phe Thr Tyr Ile Thr Asn Val Asn Ile Thr Asn Asn Thr Ala Thr
 195          200          205
Gly Asn Gly Gly Gly Ile Ala Gly Gly Lys Ala His Phe Asp Arg Ile
 210          215          220
Asp Asn Leu Thr Val Gln Ser Asn Gln Ala Lys Lys Gly Gly Gly Val
 225          230          235          240
Tyr Leu Glu Asp Ala Leu Ile Leu Glu Lys Val Ile Thr Gly Ser Val
 245          250          255
Ser Gln Asn Thr Ala Thr Glu Ser Gly Gly Gly Ile Tyr Ala Lys Asp
 260          265          270
Ile Gln Leu Gln Ala Leu Pro Gly Ser Phe Thr Ile Thr Asp Asn Lys
 275          280          285
Val Glu Thr Ser Leu Thr Thr Ser Thr Asn Leu Tyr Gly Gly Gly Ile
 290          295          300
Tyr Ser Ser Gly Ala Val Thr Leu Thr Asn Ile Ser Gly Thr Phe Gly
 305          310          315          320
Ile Thr Gly Asn Ser Val Ile Asn Thr Ala Thr Ser Gln Asp Ala Asp
 325          330          335
Ile Gln Gly Gly Gly Ile Tyr Ala Thr Thr Ser Leu Ser Ile Asn Gln
 340          345          350
Cys Asn Thr Pro Ile Leu Phe Ser Asn Asn Ser Ala Ala Thr Lys Lys
 355          360          365
Thr Ser Thr Thr Lys Gln Ile Ala Gly Gly Ala Ile Phe Ser Ala Ala
 370          375          380
Val Thr Ile Glu Asn Asn Ser Gln Pro Ile Ile Phe Leu Asn Asn Ser
 385          390          395          400
Ala Lys Ser Glu Ala Thr Thr Ala Ala Thr Ala Gly Asn Lys Asp Ser
 405          410          415
Cys Gly Gly Ala Ile Ala Ala Asn Ser Val Thr Leu Thr Asn Asn Pro
 420          425          430
Glu Ile Thr Phe Lys Gly Asn Tyr Ala Glu Thr Gly Gly Ala Ile Gly
 435          440          445
Cys Ile Asp Leu Thr Asn Gly Ser Pro Pro Arg Lys Val Ser Ile Ala
 450          455          460
Asp Asn Gly Ser Val Leu Phe Gln Asp Asn Ser Ala Leu Asn Arg Gly
 465          470          475          480
Gly Ala Ile Tyr Gly Glu Thr Ile Asp Ile Ser Arg Thr Gly Ala Thr
 485          490          495
Phe Ile Gly Asn Ser Ser Lys His Asp Gly Ser Ala Ile Cys Cys Ser
 500          505          510

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|     |     |      |     |     |     |     |      |     |     |     |     |      |     |     |     |  |  |
|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|--|--|
| Thr | Ala | Leu  | Thr | Leu | Ala | Pro | Asn  | Ser | Gln | Leu | Ile | Phe  | Glu | Asn | Asn |  |  |
|     |     | 515  |     |     |     |     | 520  |     |     |     |     | 525  |     |     |     |  |  |
| Lys | Val | Thr  | Glu | Thr | Thr | Ala | Thr  | Thr | Lys | Ala | Ser | Ile  | Asn | Asn | Leu |  |  |
|     |     | 530  |     |     |     | 535 |      |     |     | 540 |     |      |     |     |     |  |  |
| Gly | Ala | Ala  | Ile | Tyr | Gly | Asn | Asn  | Glu | Thr | Ser | Asp | Val  | Thr | Ile | Ser |  |  |
|     |     | 545  |     |     | 550 |     |      |     |     | 555 |     |      |     |     | 560 |  |  |
| Leu | Ser | Ala  | Glu | Asn | Gly | Ser | Ile  | Phe | Phe | Lys | Asn | Asn  | Leu | Cys | Thr |  |  |
|     |     |      |     | 565 |     |     |      |     | 570 |     |     |      |     |     | 575 |  |  |
| Ala | Thr | Asn  | Lys | Tyr | Cys | Ser | Ile  | Ala | Gly | Asn | Val | Lys  | Phe | Thr | Ala |  |  |
|     |     |      | 580 |     |     |     |      | 585 |     |     |     |      | 590 |     |     |  |  |
| Ile | Glu | Ala  | Ser | Ala | Gly | Lys | Ala  | Ile | Ser | Phe | Tyr | Asp  | Ala | Val | Asn |  |  |
|     |     | 595  |     |     |     |     | 600  |     |     |     |     | 605  |     |     |     |  |  |
| Val | Ser | Thr  | Lys | Xaa | Thr | Asn | Ala  | Gln | Glu | Leu | Lys | Leu  | Asn | Glu | Lys |  |  |
|     |     | 610  |     |     |     | 615 |      |     |     |     | 620 |      |     |     |     |  |  |
| Ala | Thr | Ser  | Thr | Gly | Thr | Ile | Leu  | Phe | Ser | Gly | Glu | Leu  | His | Glu | Asn |  |  |
|     |     | 625  |     |     | 630 |     |      |     |     | 635 |     |      |     |     | 640 |  |  |
| Lys | Ser | Tyr  | Ile | Pro | Gln | Lys | Val  | Thr | Phe | Ala | His | Gly  | Asn | Leu | Ile |  |  |
|     |     |      |     | 645 |     |     |      |     | 650 |     |     |      |     |     | 655 |  |  |
| Leu | Gly | Lys  | Asn | Ala | Glu | Leu | Ser  | Val | Val | Ser | Phe | Thr  | Gln | Ser | Pro |  |  |
|     |     |      | 660 |     |     |     |      | 665 |     |     |     |      | 670 |     |     |  |  |
| Gly | Thr | Thr  | Ile | Thr | Met | Gly | Pro  | Gly | Ser | Val | Leu | Ser  | Asn | His | Ser |  |  |
|     |     | 675  |     |     |     | 680 |      |     |     |     |     |      | 685 |     |     |  |  |
| Lys | Glu | Ala  | Gly | Gly | Ile | Ala | Ile  | Asn | Asn | Val | Ile | Ile  | Asp | Phe | Ser |  |  |
|     |     | 690  |     |     |     | 695 |      |     |     |     | 700 |      |     |     |     |  |  |
| Glu | Ile | Val  | Pro | Thr | Lys | Asp | Asn  | Ala | Thr | Val | Ala | Pro  | Pro | Thr | Leu |  |  |
|     |     | 705  |     |     | 710 |     |      |     |     | 715 |     |      |     |     | 720 |  |  |
| Lys | Leu | Val  | Ser | Arg | Thr | Asn | Ala  | Asp | Ser | Lys | Asp | Lys  | Ile | Asp | Ile |  |  |
|     |     |      |     | 725 |     |     |      |     | 730 |     |     |      |     |     | 735 |  |  |
| Thr | Gly | Thr  | Val | Thr | Leu | Leu | Asp  | Pro | Asn | Gly | Asn | Leu  | Tyr | Gln | Asn |  |  |
|     |     |      | 740 |     |     |     |      | 745 |     |     |     |      |     |     | 750 |  |  |
| Ser | Tyr | Leu  | Gly | Glu | Asp | Arg | Asp  | Ile | Thr | Leu | Phe | Asn  | Ile | Asp | Asn |  |  |
|     |     | 755  |     |     |     |     | 760  |     |     |     |     | 765  |     |     |     |  |  |
| Ser | Ala | Ser  | Gly | Ala | Val | Thr | Ala  | Thr | Asn | Val | Thr | Leu  | Gln | Gly | Asn |  |  |
|     |     | 770  |     |     |     | 775 |      |     |     |     | 780 |      |     |     |     |  |  |
| Leu | Gly | Ala  | Lys | Lys | Gly | Tyr | Leu  | Gly | Thr | Trp | Asn | Leu  | Asp | Pro | Asn |  |  |
|     |     | 785  |     |     | 790 |     |      |     |     | 795 |     |      |     |     | 800 |  |  |
| Ser | Ser | Gly  | Ser | Lys | Ile | Ile | Leu  | Lys | Trp | Thr | Phe | Asp  | Lys | Tyr | Leu |  |  |
|     |     |      |     | 805 |     |     |      |     | 810 |     |     |      |     |     | 815 |  |  |
| Arg | Trp | Pro  | Tyr | Ile | Pro | Arg | Asp  | Asn | His | Phe | Tyr | Ile  | Asn | Ser | Ile |  |  |
|     |     |      | 820 |     |     |     |      | 825 |     |     |     |      |     |     | 830 |  |  |
| Trp | Gly | Ala  | Gln | Asn | Ser | Leu | Val  | Thr | Val | Lys | Gln | Gly  | Ile | Leu | Gly |  |  |
|     |     | 835  |     |     |     |     | 840  |     |     |     |     | 845  |     |     |     |  |  |
| Asn | Met | Leu  | Asn | Asn | Ala | Arg | Phe  | Glu | Asp | Pro | Ala | Phe  | Asn | Asn | Phe |  |  |
|     |     | 850  |     |     |     | 855 |      |     |     |     | 860 |      |     |     |     |  |  |
| Trp | Ala | Ser  | Ala | Ile | Gly | Ser | Phe  | Leu | Arg | Lys | Glu | Val  | Ser | Arg | Asn |  |  |
|     |     | 865  |     |     | 870 |     |      |     |     | 875 |     |      |     |     | 880 |  |  |
| Ser | Asp | Ser  | Phe | Thr | Tyr | His | Gly  | Arg | Gly | Tyr | Thr | Ala  | Ala | Val | Asp |  |  |
|     |     |      |     | 885 |     |     |      |     | 890 |     |     |      |     |     | 895 |  |  |
| Ala | Lys | Pro  | Arg | Gln | Glu | Phe | Ile  | Leu | Gly | Ala | Ala | Phe  | Ser | Gln | Val |  |  |
|     |     |      | 900 |     |     |     |      | 905 |     |     |     |      | 910 |     |     |  |  |
| Phe | Gly | His  | Ala | Glu | Ser | Glu | Tyr  | His | Leu | Asp | Asn | Tyr  | Lys | His | Lys |  |  |
|     |     | 915  |     |     |     |     | 920  |     |     |     |     | 925  |     |     |     |  |  |
| Gly | Ser | Gly  | His | Ser | Thr | Gln | Ala  | Ser | Leu | Tyr | Ala | Gly  | Asn | Ile | Phe |  |  |
|     |     | 930  |     |     |     | 935 |      |     |     |     | 940 |      |     |     |     |  |  |
| Tyr | Phe | Pro  | Ala | Ile | Arg | Ser | Arg  | Pro | Ile | Leu | Phe | Gln  | Gly | Val | Ala |  |  |
|     |     | 945  |     |     | 950 |     |      |     |     | 955 |     |      |     |     | 960 |  |  |
| Thr | Tyr | Gly  | Tyr | Met | Gln | His | Asp  | Thr | Thr | Thr | Tyr | Tyr  | Pro | Ser | Ile |  |  |
|     |     |      |     | 965 |     |     |      |     | 970 |     |     |      |     |     | 975 |  |  |
| Glu | Glu | Lys  | Asn | Met | Ala | Asn | Trp  | Asp | Ser | Ile | Ala | Trp  | Leu | Phe | Asp |  |  |
|     |     |      | 980 |     |     |     |      | 985 |     |     |     |      | 990 |     |     |  |  |
| Leu | Arg | Phe  | Ser | Val | Asp | Leu | Lys  | Glu | Pro | Gln | Pro | His  | Ser | Thr | Ala |  |  |
|     |     | 995  |     |     |     |     | 1000 |     |     |     |     | 1005 |     |     |     |  |  |
| Arg | Leu | Thr  | Phe | Tyr | Thr | Glu | Ala  | Glu | Tyr | Thr | Arg | Ile  | Arg | Gln | Glu |  |  |
|     |     | 1010 |     |     |     |     | 1015 |     |     |     |     | 1020 |     |     |     |  |  |

Lys Phe Thr Glu Leu Asp Tyr Asp Pro Arg Ser Phe Ser Ala Cys Ser  
 1025 1030 1035 1040  
 Tyr Gly Asn Leu Ala Ile Pro Thr Gly Phe Ser Val Asp Gly Ala Leu  
 1045 1050 1055  
 Ala Trp Arg Glu Ile Ile Leu Tyr Asn Lys Val Ser Ala Ala Tyr Leu  
 1060 1065 1070  
 Pro Val Ile Leu Arg Asn Asn Pro Lys Ala Thr Tyr Glu Val Leu Ser  
 1075 1080 1085  
 Thr Lys Glu Lys Gly Asn Val Val Asn Val Leu Pro Thr Arg Asn Ala  
 1090 1095 1100  
 Ala Arg Ala Glu Val Ser Ser Gln Ile Tyr Leu Gly Ser Tyr Trp Thr  
 1105 1110 1115 1120  
 Leu Tyr Gly Thr Tyr Thr Ile Asp Ala Ser Met Asn Thr Leu Val Gln  
 1125 1130 1135  
 Met Ala Asn Gly Gly Ile Arg Phe Val Phe  
 1140 1145

&lt;210&gt;581

&lt;211&gt;289

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;581

Asn Asn Arg Ser Ser Tyr Gln Thr Ala Phe Val Met His Lys Val Ile  
 1 5 10 15  
 Val Xaa Ile Phe Leu Thr Leu Tyr Ser Leu Lys Ser Tyr Gly Asn Asp  
 20 25 30  
 Val Ile Asp Lys Pro His Val Leu Val Ser Ile Ala Pro Tyr Lys Phe  
 35 40 45  
 Leu Val Glu Gln Ile Ala Glu Glu Thr Cys Phe Val Tyr Ala Ile Val  
 50 55 60  
 Thr Asn His Tyr Asp Pro His Thr Tyr Glu Leu Pro Pro Gln Gln Ile  
 65 70 75 80  
 Lys Glu Leu Arg Gln Gly Asp Leu Trp Phe Arg Ile Gly Glu Ala Phe  
 85 90 95  
 Glu Lys Thr Cys Glu Arg Asn Leu Thr Cys Gln Gln Val Asp Leu Ser  
 100 105 110  
 Gln Asn Val Ser Leu Ile Gln Gly Lys Pro Cys Cys Asn Gln His Thr  
 115 120 125  
 Thr Asn Tyr Asp Thr His Thr Trp Leu Ser Pro Lys Asn Leu Lys Val  
 130 135 140  
 Gln Val Glu Thr Ile Val Thr Thr Leu Ser Lys Lys Tyr Pro Gln His  
 145 150 155 160  
 Ala Thr Leu Tyr Gln Ser Asn Gly Glu Lys Leu Leu Leu Ala Leu Asp  
 165 170 175  
 Gln Leu Asn Glu Glu Ile Leu Thr Ile Thr Ser Lys Ala Lys Gln Arg  
 180 185 190  
 His Ile Leu Val Ser His Gly Ala Phe Gly Tyr Phe Cys Arg Asp Tyr  
 195 200 205  
 Asn Phe Ser Gln His Thr Ile Glu Lys Ser Ser His Val Glu Pro Ser  
 210 215 220  
 Pro Lys Asp Val Ala Arg Val Phe Arg Asp Ile Glu Gln Tyr Lys Ile  
 225 230 235 240  
 Ser Ser Val Ile Leu Leu Glu Tyr Ser Gly Arg Arg Ser Ser Ala Met  
 245 250 255  
 Leu Ala Asp Arg Phe His Met His Thr Val Asn Leu Asp Pro Tyr Ala  
 260 265 270  
 Glu Asn Ile Leu Val Asn Leu Lys Thr Ile Ala Thr Thr Phe Ser Ser  
 275 280 285  
 Leu

&lt;210&gt;582

&lt;211&gt;352

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;582

Leu Lys Lys Asp Lys Asn Val Ile Met Phe Val Asp Gln Ile Thr Leu  
 1 5 10 15  
 Glu Leu Arg Ala Gly Lys Gly Gly Asn Gly Val Val Ala Trp Arg Lys  
 20 25 30  
 Glu Lys Tyr Leu Pro Lys Gly Gly Pro Tyr Gly Gly Asn Gly Gly Asn  
 35 40 45  
 Gly Gly Ser Val Ile Ile Glu Ala Thr Thr Ser Val Tyr Ser Phe Glu  
 50 55 60  
 Ala Tyr Arg Asn Ile Arg Phe Leu Lys Ala Pro Asp Gly Gln Ser Gly  
 65 70 75 80  
 Ala Thr Asn Asn Arg Thr Gly Arg Ser Gly Lys Asp Leu Ile Val Ser  
 85 90 95  
 Val Pro Thr Gly Thr Leu Leu Arg Asp Ala Glu Thr Gly Glu Ile Leu  
 100 105 110  
 His Asp Phe Thr Val Asp Gly Glu Arg Leu Leu Val Ser Gln Gly Gly  
 115 120 125  
 Lys Gly Gly Lys Gly Asn Thr Phe Phe Lys Thr Ser Val Asn Arg Ala  
 130 135 140  
 Pro Thr Lys Ala Thr Pro Gly Lys Pro Gly Glu Ile Arg Gln Val Glu  
 145 150 155 160  
 Leu Glu Leu Lys Leu Ile Ala Asp Ile Gly Leu Val Gly Phe Pro Asn  
 165 170 175  
 Ala Gly Lys Ser Thr Leu Phe Asn Thr Leu Ala His Thr Glu Val Lys  
 180 185 190  
 Val Gly Ala Tyr Pro Phe Thr Thr Leu Ala Pro Ser Leu Gly Leu Val  
 195 200 205  
 Leu Cys Lys Asp Arg Leu Tyr Gln Lys Pro Trp Ile Ile Ala Asp Ile  
 210 215 220  
 Pro Gly Ile Ile Glu Gly Ala His Gln Asn Lys Gly Leu Gly Leu Asp  
 225 230 235 240  
 Phe Leu Arg His Ile Glu Arg Thr Leu Leu Leu Phe Val Ile Asp  
 245 250 255  
 Val Ser Lys Arg Glu Arg Asn Ser Pro Glu Glu Asp Leu Glu Thr Leu  
 260 265 270  
 Ile His Glu Leu His Ser His Gln Pro Asp Phe Glu Lys Lys Asp Met  
 275 280 285  
 Leu Val Ala Leu Asn Lys Ile Asp Asp Leu Leu Pro Asp Glu Gln Glu  
 290 295 300  
 Glu Cys Leu Gln Ser Phe Gln Lys Arg Phe Pro Ser Tyr Thr Phe Val  
 305 310 315 320  
 Leu Ile Ser Gly Leu Thr Gly Glu Gly Val Asp Gly Leu Tyr Arg Phe  
 325 330 335  
 Phe Thr Gln Asp Ser Leu Tyr Asn Xaa Thr Pro Ser Ala Met Ile Ser  
 340 345 350

&lt;210&gt;583

&lt;211&gt;84

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;583

Met Ala His Lys Lys Gly Gln Gly Ala Ser Arg Asn Gly Arg Asp Ser  
 1 5 10 15  
 Lys Ser Lys Arg Leu Gly Val Lys Val Gly Ala Gly Gln Lys Val Ser  
 20 25 30  
 Thr Gly Ser Ile Leu Val Arg Gln Arg Gly Thr Arg Trp Asn Pro Ala  
 35 40 45  
 Gln Asn Val Gly Arg Gly Arg Asp Asp Thr Leu Phe Ala Leu Val Asp  
 50 55 60  
 Gly Ile Val Val Met Lys Lys Thr Asn Arg Thr Tyr Ile Ser Val Val  
 65 70 75 80  
 Pro Glu Gln Leu

&lt;210&gt;584

&lt;211&gt;107

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;584

Leu Met Glu Pro Tyr Ala Val Ile Gln Thr Gly Ser Lys Gln Tyr Gln  
 1 5 10 15  
 Val Arg Ser Gly Asp Val Ile Asp Val Glu Leu Leu Gly Glu Val Ala  
 20 25 30  
 Ser Asp Lys Glu Val Ile Phe Gln Asp Val Leu Phe Val Phe Asp Gly  
 35 40 45  
 Thr Lys Ala Ser Leu Gly Ser Pro Thr Ile Ala Asn Ala Gln Val Lys  
 50 55 60  
 Ala Glu Tyr Leu Ser His Val Lys Gly Glu Lys Val Val Ala Tyr Lys  
 65 70 75 80  
 Tyr Lys Lys Arg Lys Asn Tyr His Arg Lys His Gly His Arg Gln Lys  
 85 90 95  
 Tyr Leu Arg Val Lys Ile Arg Glu Ile Leu Ile  
 100 105

&lt;210&gt;585

&lt;211&gt;199

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;585

Val Asn Phe Arg Asn Phe Val Val Ser Ser Val Lys Glu Ile Leu Lys  
 1 5 10 15  
 Lys Asn Ile Tyr Gln Val Val Met Asp Arg Asp Asn Glu Val Pro Leu  
 20 25 30  
 Pro Lys Pro Lys Trp Ile Tyr Arg Thr Gly Ile Gly Gln Asp Ser His  
 35 40 45  
 Arg Phe Leu Pro Glu Ser Ser Thr Lys Pro Cys Ile Leu Gly Gly Ile  
 50 55 60  
 Ile Phe Asp His Cys Pro Gly Phe Gln Ala Asn Ser Asp Gly Asp Ile  
 65 70 75 80  
 Ile Phe His Ala Ile Cys Asn Ala Ile Ser Ser Val Thr Asn Lys Ile  
 85 90 95  
 Ile Leu Gly Lys Val Ala Asp Glu Leu Leu Gln Thr Arg Gly Ile Thr  
 100 105 110  
 Asp Ser Gly Ile Tyr Leu Glu Glu Ala Leu Lys Ser Leu Lys Pro Asn  
 115 120 125  
 Gln Lys Ile Ser His Val Ala Ile Thr Ile Glu Gly Ser Arg Pro Lys  
 130 135 140  
 Phe Leu Cys Lys Leu Ser Ala Leu Arg Gln Asn Ile Ala Gln Val Met  
 145 150 155 160  
 Asn Leu Thr Pro Thr Asp Ile Gly Ile Thr Ala Thr Ser Gly Glu Gly  
 165 170 175  
 Leu Ser Asp Phe Gly Cys Gly Asp Gly Val Gln Cys Phe Cys Val Leu  
 180 185 190  
 Thr Val Met Glu Tyr Cys Asp  
 195

&lt;210&gt;586

&lt;211&gt;246

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;586

Ile Pro Ala Lys Leu Asn Ser Phe Phe Pro Asp Lys Asp Pro Lys Ile  
 1 5 10 15  
 Thr Leu Tyr Asp Ala Ile Gln Glu Tyr Arg Pro Gln Ile Pro Ile Glu  
 20 25 30  
 Leu Phe Ala Glu Ser Val Phe Pro Leu Leu Pro Arg Phe Tyr Ser Ile  
 35 40 45  
 Ala Ser Ser Pro Asp Leu His Pro Lys Ser Ile Glu Leu Leu Val Lys  
 50 55 60  
 His Val Ser Tyr Pro Gly Lys Tyr Gln Lys Arg Phe Gly Val Cys Ser  
 65 70 75 80  
 Ser Phe Leu Cys Ser Glu Leu Gln Val Asn Asp Ser Ala Tyr Ile Phe  
 85 90 95

Val Gln Pro Thr Lys His Phe Thr Leu Ser Thr Gln Thr Glu Gly Lys  
 100 105 110  
 Pro Leu Val Met Ile Gly Ala Gly Thr Gly Ile Ala Pro Tyr Lys Ala  
 115 120 125  
 Phe Leu Glu Glu Arg Leu Phe Asn Lys Asp Pro Gly Asn Asn Leu Leu  
 130 135 140  
 Phe Phe Gly Glu Arg Lys Glu Lys Val Asn Phe Tyr Tyr Arg Glu Phe  
 145 150 155 160  
 Trp Asn His Ala Glu Glu Gly Lys Leu Lys Leu Phe Leu Ala Phe  
 165 170 175  
 Ser Arg Glu Arg Asp Gln Lys Val Tyr Val Gln Asp Leu Leu Arg Ile  
 180 185 190  
 Gln Lys Asp Glu Val Arg Lys Ala Tyr Glu Glu Gly Gly Phe Phe Phe  
 195 200 205  
 Val Cys Gly Arg Lys Val Leu Gly Ile Glu Val Lys His Ala Leu Glu  
 210 215 220  
 Glu Ile Leu Gly Lys Asp Thr Leu Ala Ser Leu Arg Lys Glu His Arg  
 225 230 235 240  
 Tyr Val Val Asp Val Tyr  
 245

&lt;210&gt;587

&lt;211&gt;85

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;587

Lys Met Tyr Leu Gln Glu Lys Phe Lys Ala Gln Gln Val Pro Leu Val  
 1 5 10 15  
 Leu Arg Glu Leu Leu Ser Cys Ser Asp Ser Ile Asn Asp Ser Asp Pro  
 20 25 30  
 Ile Tyr Arg Met Val Phe Asp Ser Asn Asp Thr Thr Ile Ser Tyr Lys  
 35 40 45  
 Val Gly Asp Ala Leu Gly Val Leu Pro Glu Asn Ser Lys Glu Val Ser  
 50 55 60  
 Glu His Val Leu Gln Leu Leu Arg Leu Phe Pro Asn Asp Pro Cys Gln  
 65 70 75 80  
 Arg Lys Lys Asn Phe  
 85

&lt;210&gt;588

&lt;211&gt;118

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;588

Lys Lys Phe Lys Lys Arg Leu Leu Arg Ser Lys Gly Cys Met Lys Gln  
 1 5 10 15  
 Gln Lys Gln Lys Ile Arg Ile Arg Leu Lys Gly Phe Asp Gln Gly Gln  
 20 25 30  
 Leu Asp Arg Ser Thr Ala Asp Ile Val Glu Thr Ala Lys Arg Thr Gly  
 35 40 45  
 Ala Arg Val Val Gly Pro Ile Pro Leu Pro Thr Lys Arg Glu Val Tyr  
 50 55 60  
 Thr Val Leu Arg Ser Pro His Val Asp Lys Lys Ser Arg Glu Gln Phe  
 65 70 75 80  
 Glu Ile Arg Thr His Lys Arg Leu Val Asp Ile Leu Asp Pro Thr Gly  
 85 90 95  
 Lys Thr Ile Asp Ala Leu Lys Met Leu Ala Leu Pro Ala Gly Val Asp  
 100 105 110  
 Ile Lys Ile Lys Ala Ala  
 115

&lt;210&gt;589

&lt;211&gt;651

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;589

Ser His Glu Gly Gly Ala Thr Met Asp Trp Met Ala Gln Glu Gln Glu



|                 |                 |                     |                 |
|-----------------|-----------------|---------------------|-----------------|
| 1               | 5               | 10                  | 15              |
| Arg Gly Ile Thr | Ile Thr Ser Ala | Ala Thr Thr Val Phe | Trp Leu Gly     |
| 20              | 25              | 30                  |                 |
| Ala Lys Ile Asn | Ile Ile Asp Thr | Pro Gly His Val     | Asp Phe Thr Ile |
| 35              | 40              | 45                  |                 |
| Glu Val Glu Arg | Ser Leu Arg Val | Leu Asp Gly Ala     | Val Ala Val Phe |
| 50              | 55              | 60                  |                 |
| Asp Ala Val Ser | Gly Val Glu Pro | Gln Ser Glu Thr     | Val Trp Arg Gln |
| 65              | 70              | 75                  | 80              |
| Ala Asp Lys Tyr | Gly Val Pro Arg | Ile Ala Phe Val     | Asn Lys Met Asp |
| 85              | 90              | 95                  |                 |
| Arg Met Gly Ala | Asp Tyr Phe Ala | Ala Val Glu Ser     | Met Lys Glu Lys |
| 100             | 105             | 110                 |                 |
| Leu Gly Ala Asn | Ala Phe Pro Val | His Cys Pro Ile     | Gly Ser Glu Ser |
| 115             | 120             | 125                 |                 |
| Gln Phe Val Gly | Met Val Asp Leu | Ile Ser Gln Lys     | Ala Leu Tyr Phe |
| 130             | 135             | 140                 |                 |
| Leu Asp Asp Thr | Leu Gly Ala Lys | Trp Glu Glu Lys     | Glu Ile Ser Glu |
| 145             | 150             | 155                 | 160             |
| Asp Leu Lys Glu | Arg Cys Ala Glu | Leu Arg Ala Asn     | Leu Leu Glu Glu |
| 165             | 170             | 175                 |                 |
| Leu Ala Thr Ile | Asp Glu Ser Asn | Glu Ala Phe Met     | Met Lys Val Leu |
| 180             | 185             | 190                 |                 |
| Glu Asp Pro Asp | Ser Ile Thr Glu | Asp Glu Ile His     | Gln Val Met Arg |
| 195             | 200             | 205                 |                 |
| Lys Gly Val Ile | Glu Asn Lys Ile | Asn Pro Val Leu     | Cys Gly Thr Ala |
| 210             | 215             | 220                 |                 |
| Phe Lys Asn Lys | Gly Val Gln Gln | Leu Leu Asn Val     | Ile Val Lys Trp |
| 225             | 230             | 235                 | 240             |
| Leu Pro Ser Pro | Leu Asp Arg Gly | Asn Ile Arg Gly     | Ile Asn Leu Lys |
| 245             | 250             | 255                 |                 |
| Thr Asp Gln Glu | Ile Ser Leu Glu | Pro Arg Arg Asp     | Gly Pro Leu Ala |
| 260             | 265             | 270                 |                 |
| Ala Leu Ala Phe | Lys Ile Met Thr | Asp Pro Tyr Val     | Gly Arg Ile Thr |
| 275             | 280             | 285                 |                 |
| Phe Ile Arg Ile | Tyr Ser Gly Thr | Leu Lys Lys Gly     | Ser Ala Ile Leu |
| 290             | 295             | 300                 |                 |
| Asn Ser Thr Lys | Asp Lys Lys Glu | Arg Ile Ser Arg     | Leu Leu Glu Met |
| 305             | 310             | 315                 | 320             |
| His Ala Asn Glu | Arg Thr Asp Arg | Asp Glu Phe Thr     | Val Gly Asp Ile |
| 325             | 330             | 335                 |                 |
| Gly Ala Cys Val | Gly Leu Lys Phe | Ser Val Thr Gly     | Asp Thr Leu Cys |
| 340             | 345             | 350                 |                 |
| Asp Asp Asn Gln | Glu Ile Val Leu | Glu Arg Ile Glu     | Phe Pro Asp Pro |
| 355             | 360             | 365                 |                 |
| Val Ile Asp Met | Ala Ile Glu Pro | Lys Ser Lys Gly     | Asp Arg Glu Lys |
| 370             | 375             | 380                 |                 |
| Leu Ala Gln Ala | Leu Ser Leu Ser | Glu Glu Asp Pro     | Thr Phe Arg     |
| 385             | 390             | 395                 | 400             |
| Val Ser Thr Asn | Glu Glu Thr Gly | Gln Thr Ile Ile     | Ser Gly Met Gly |
| 405             | 410             | 415                 |                 |
| Glu Leu His Leu | Asp Ile Leu Arg | Asp Arg Met Ile     | Arg Glu Phe Lys |
| 420             | 425             | 430                 |                 |
| Val Glu Ala Asn | Val Gly Lys Pro | Gln Val Ser Tyr     | Lys Glu Thr Ile |
| 435             | 440             | 445                 |                 |
| Thr Val Ser Gly | Asn Ser Glu Thr | Lys Tyr Val Lys     | Gln Ser Gly Gly |
| 450             | 455             | 460                 |                 |
| Arg Gly Gln Tyr | Ala His Val Cys | Leu Glu Ile Glu     | Pro Asn Glu Pro |
| 465             | 470             | 475                 | 480             |
| Gly Lys Gly Asn | Glu Val Val Ser | Lys Ile Val Gly     | Gly Val Ile Pro |
| 485             | 490             | 495                 |                 |
| Lys Glu Tyr Ile | Pro Ala Val Ile | Lys Gly Ile Glu     | Glu Glu Gly Leu |
| 500             | 505             | 510                 |                 |
| Thr Gly Val Leu | Ala Gly Tyr Gly | Leu Val Asp Val     | Lys Val Ser Ile |

|   |     |     |
|---|-----|-----|
| 515   | 520 | 525 |
| Val Phe Gly Ser Tyr His Glu Val Asp Ser Ser Glu Met Ala Phe Lys |     |     |
| 530   | 535 | 540 |
| Ile Cys Gly Ser Met Ala Val Lys Asp Ala Cys Arg Lys Ala Lys Pro |     |     |
| 545   | 550 | 555 |
| Val Ile Leu Glu Pro Ile Met Lys Val Ala Val Ile Thr Pro Glu Asp |     |     |
| 565   | 570 | 575 |
| His Leu Gly Asp Val Ile Gly Asp Leu Asn Arg Arg Arg Gly Lys Ile |     |     |
| 580   | 585 | 590 |
| Leu Gly Gln Glu Ser Ser Arg Gly Met Ala Gln Val Asn Ala Glu Val |     |     |
| 595   | 600 | 605 |
| Pro Leu Ser Glu Met Phe Gly Tyr Thr Thr Ser Leu Arg Ser Leu Thr |     |     |
| 610   | 615 | 620 |
| Ser Gly Arg Ala Thr Ser Thr Met Glu Pro Ala Phe Phe Ala Lys Val |     |     |
| 625   | 630 | 635 |
| Pro Gln Lys Ile Gln Glu Glu Ile Val Lys Lys                     |     | 640 |
| 645   | 650 |     |

&lt;210&gt;590

&lt;211&gt;82

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;590

|   |    |    |
|---|----|----|
| Leu Asn Tyr Gly Glu Asn Asn Lys Phe Met Ser Asn Gln Glu Phe Asp |    |    |
| 1   | 5  | 10 |
| Leu Ser Ala Ile Arg Asn Ile Gly Ile Met Ala His Ile Asp Ala Gly |    |    |
| 20  | 25 | 30 |
| Lys Thr Thr Thr Thr Glu Arg Ile Leu Phe Tyr Ala Gly Arg Thr His |    |    |
| 35  | 40 | 45 |
| Lys Ile Gly Glu Val Met Lys Ala Glu Leu Pro Trp Thr Gly Trp Pro |    |    |
| 50  | 55 | 60 |
| Arg Ser Lys Lys Glu Glu Leu Arg Leu Pro Leu Leu Gln Leu Leu Ser |    |    |
| 65  | 70 | 75 |
| Ser Gly   |    | 80 |

&lt;210&gt;591

&lt;211&gt;159

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;591

|   |     |     |
|---|-----|-----|
| Met Tyr Met Ser Arg Arg His Ser Ala Glu Lys Arg Asp Ile Pro Gly |     |     |
| 1   | 5   | 10  |
| Asp Pro Ile Tyr Gly Ser Val Ile Leu Glu Lys Phe Ile Asn Lys Val |     |     |
| 20  | 25  | 30  |
| Met Met His Gly Lys Lys Ser Val Ala Arg Lys Ile Val Tyr Ser Ala |     |     |
| 35  | 40  | 45  |
| Leu Glu Arg Phe Gly Lys Lys Leu Asn Leu Glu Asn Val Leu Glu Gly |     |     |
| 50  | 55  | 60  |
| Phe Gly Glu Ala Leu Glu Asn Ala Lys Pro Ile Leu Glu Val Arg Ser |     |     |
| 65  | 70  | 75  |
| Arg Arg Val Gly Gly Ala Thr Tyr Gln Val Pro Val Glu Val Ala Ser |     |     |
| 85  | 90  | 95  |
| Glu Arg Arg Asn Cys Leu Ala Met Gln Trp Ile Ile Lys His Ala Arg |     |     |
| 100   | 105 | 110 |
| Ser Lys Pro Gly Lys Ser Met Glu Val Gly Leu Ala Thr Glu Leu Ile |     |     |
| 115   | 120 | 125 |
| Asp Cys Phe Asn Lys Gln Gly Ala Thr Ile Lys Lys Arg Glu Asp Thr |     |     |
| 130   | 135 | 140 |
| His Arg Met Ala Glu Ala Asn Lys Ala Phe Ala His Tyr Lys Trp     |     |     |
| 145   | 150 | 155 |

&lt;210&gt;592

&lt;211&gt;146

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;592

Leu Pro Thr Lys Arg Ala Leu Leu Tyr Ile Ser Met Leu Val Val Val  
 1 5 10 15  
 Arg Leu Lys Arg Glu Glu Tyr Met Pro Thr Ile Asn Gln Leu Ile Arg  
 20 25 30  
 Lys Arg Arg Lys Ser Ser Leu Ala Arg Lys Lys Ser Pro Ala Leu Gln  
 35 40 45  
 Lys Cys Pro Gln Lys Arg Gly Val Cys Leu Gln Val Lys Thr Lys Thr  
 50 55 60  
 Pro Lys Lys Pro Asn Ser Ala Leu Arg Lys Val Ala Trp Val Arg Leu  
 65 70 75 80  
 Ser Asn Gly Gln Glu Val Ile Ala Tyr Ile Gly Gly Glu Gly His Asn  
 85 90 95  
 Leu Gln Glu His Ser Ile Val Leu Ile Gln Gly Gly Arg Val Lys Asp  
 100 105 110  
 Leu Pro Gly Val Arg Tyr His Ile Val Arg Gly Thr Leu Asp Cys Ala  
 115 120 125  
 Ala Val Lys Asn Arg Lys Gln Ser Arg Ser Arg Tyr Gly Ala Lys Arg  
 130 135 140  
 Pro Lys  
 145

&lt;210&gt;593

&lt;211&gt;268

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;593

Gly Cys Met Trp Arg Val Val Leu Arg Phe Leu Ile Ile Phe Ile Leu  
 1 5 10 15  
 Gly Arg Ala Val Phe Pro Leu Arg Ala Ser Glu Ser Phe Ser Trp Glu  
 20 25 30  
 Thr Ser Thr Cys Leu Thr Val Leu Gly Ile Pro Phe Ile Asp Ile Ile  
 35 40 45  
 Leu Thr Thr Asn Glu Asp Phe Val Ala Gln Cys Gly Leu Gln Ile Gly  
 50 55 60  
 Thr Ile Ser Ser Thr Asn Asn Ala Lys Ile Lys Glu Ile Phe Leu Ile  
 65 70 75 80  
 Tyr Lys Glu Lys Phe Pro Glu Ala Ser Ile Ser Phe Lys Arg Lys Glu  
 85 90 95  
 Pro Leu Asn Leu Ser Gln Ser His Leu Ser Asp Leu Gly Ile Leu Cys  
 100 105 110  
 Met Arg Asn Gly Glu Thr Tyr Ala Glu Gly Met Ala Asn Lys Glu Asn  
 115 120 125  
 Gly Pro Ala Leu Lys Gln Pro Lys Asp Leu Arg Leu Val Leu Arg Cys  
 130 135 140  
 Pro Asn Gln Pro Asp Thr Leu Leu Tyr Ser Glu Lys Glu Ala Glu Lys  
 145 150 155 160  
 Gly Ile Glu Thr Asn Thr Cys Leu Cys Asn Gln Gly Tyr Thr Leu Leu  
 165 170 175  
 Asp Gly Gln Leu Ile Leu Tyr Gly Asp Ser Ile Glu Lys Phe Leu Lys  
 180 185 190  
 Glu Thr Lys Arg Lys Asn Asn His Thr Leu Val Asp Leu Cys Asp Ser  
 195 200 205  
 Gln Val Val Thr Thr Phe Leu Gly Arg Phe Trp Ser Leu Leu Asn Tyr  
 210 215 220  
 Val Gln Val Leu Phe Leu Ser Glu Asp Ser Ala Lys Xaa Leu Ala Gly  
 225 230 235 240  
 Ile Pro Asp Leu Ala Gln Xaa Arg Asn Cys Phe Pro Thr Pro Tyr Leu  
 245 250 255  
 Cys Phe Leu Phe Ile Pro Thr Ile Leu Phe Thr Ser  
 260 265

&lt;210&gt;594

&lt;211&gt;648

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;594

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Met Phe Val Met Lys Lys Leu Val Arg Leu Cys Val Val Leu Leu Ser
 1           5           10           15
Leu Leu Pro Asn Val Leu Phe Ser Ser Asp Leu Leu Arg Glu Glu Gly
          20           25           30
Ile Lys Lys Met Met Asp Lys Leu Ile Glu Tyr His Val Asp Ala Gln
          35           40           45
Glu Val Ser Thr Asp Ile Leu Ser Arg Ser Leu Ser Ser Tyr Ile Gln
 50           55           60
Ser Phe Asp Pro His Lys Ser Tyr Leu Ser Asn Gln Glu Val Ala Val
 65           70           75           80
Phe Leu Gln Ser Pro Glu Thr Lys Lys Arg Leu Leu Lys Asn Tyr Lys
          85           90           95
Ala Gly Asn Phe Ala Ile Tyr Arg Asn Ile Asn Gln Leu Ile His Glu
          100          105          110
Ser Ile Leu Arg Ala Arg Gln Trp Arg Asn Glu Trp Val Lys Asn Pro
          115          120          125
Lys Glu Leu Val Leu Glu Ala Ser Ser Tyr Gln Ile Ser Lys Gln Pro
          130          135          140
Met Gln Trp Ser Lys Ser Leu Asp Glu Val Lys Gln Arg Gln Arg Ala
145           150           155           160
Leu Leu Leu Ser Tyr Leu Ser Leu His Leu Ala Gly Ala Ser Ser Ser
          165          170          175
Arg Tyr Glu Gly Lys Glu Glu Gln Leu Ala Ala Leu Cys Leu Arg Gln
          180          185          190
Ile Glu Asn His Glu Asn Val Tyr Leu Gly Ile Asn Asp His Gly Val
          195          200          205
Ala Met Asp Arg Asp Glu Glu Ala Tyr Gln Phe His Ile Arg Val Val
          210          215          220
Lys Ala Leu Ala His Ser Leu Asp Ala His Thr Ala Tyr Phe Ser Lys
225           230           235           240
Asp Glu Ala Leu Ala Met Arg Ile Gln Leu Glu Lys Gly Met Cys Gly
          245          250          255
Ile Gly Val Val Leu Lys Glu Asp Ile Asp Gly Val Val Val Arg Glu
          260          265          270
Ile Ile Pro Gly Gly Pro Ala Ala Lys Ser Gly Asp Leu Gln Leu Gly
          275          280          285
Asp Ile Ile Tyr Arg Val Asp Gly Lys Asp Ile Glu His Leu Ser Phe
          290          295          300
Arg Gly Val Leu Asp Cys Leu Arg Gly Ser His Gly Ser Thr Val Val
305           310           315           320
Leu Asp Ile His Arg Gly Glu Ser Asp His Thr Ile Ala Leu Arg Arg
          325          330          335
Glu Lys Ile Leu Leu Glu Asp Arg Arg Val Asp Val Ser Tyr Glu Pro
          340          345          350
Tyr Gly Asp Gly Val Ile Gly Lys Val Thr Leu His Ser Phe Tyr Glu
          355          360          365
Gly Glu Asn Gln Val Ser Ser Glu Gln Asp Leu Arg Arg Ala Ile Gln
          370          375          380
Gly Leu Lys Glu Lys Asn Leu Leu Gly Leu Val Leu Asp Ile Arg Glu
385           390           395           400
Asn Thr Gly Gly Phe Leu Ser Gln Ala Ile Lys Val Ser Gly Leu Phe
          405          410          415
Met Thr Asn Gly Val Val Val Val Ser Arg Tyr Ala Asp Gly Thr Met
          420          425          430
Lys Cys Tyr Arg Thr Val Ser Pro Lys Lys Phe Tyr Asp Gly Pro Leu
          435          440          445
Ala Ile Leu Val Ser Lys Ser Ser Ala Ser Ala Ala Glu Ile Val Ala
          450          455          460
Gln Thr Leu Gln Asp Tyr Gly Val Ala Leu Val Val Gly Asp Glu Gln
465           470           475           480
Thr Tyr Gly Lys Gly Thr Ile Gln His Gln Thr Ile Thr Gly Asp Ala
          485          490          495
Ser Gln Asp Asp Cys Phe Lys Val Thr Val Gly Lys Tyr Tyr Ser Pro
          500          505          510

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Ser Gly Lys Ser Thr Gln Leu Gln Gly Val Lys Ser Asp Ile Leu Ile  
515 520 525  
Pro Ser Leu Tyr Ala Glu Asp Arg Leu Gly Glu Arg Phe Leu Glu His  
530 535 540  
Pro Leu Pro Ala Asp Cys Cys Asp Asn Val Leu His Asp Pro Leu Thr  
545 550 555 560  
Asp Leu Asp Thr Gln Thr Arg Pro Trp Phe Gln Lys Tyr Tyr Leu Pro  
565 570 575  
Asn Leu Gln Lys Gln Glu Thr Leu Trp Arg Glu Met Leu Pro Gln Leu  
580 585 590  
Thr Lys Asn Ser Glu Gln Arg Leu Ser Glu Asn Ser Asn Phe Gln Ala  
595 600 605  
Phe Leu Ser Gln Ile Lys Ser Ser Glu Lys Thr Asp Leu Ser Tyr Gly  
610 615 620  
Ser Asn Asp Leu Gln Leu Glu Glu Ser Ile Asn Ile Leu Lys Asp Met  
625 630 635 640  
Ile Leu Leu Gln Gln Cys Arg Lys  
645

&lt;210&gt;595

&lt;211&gt;199

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;595

Glu Asn Gly Met Ser Ser Asn Leu His Pro Val Gly Gly Thr Gly Thr  
1 5 10 15  
Gly Ala Ala Ala Pro Glu Ser Val Leu Asn Ile Val Glu Glu Ile Ala  
20 25 30  
Ala Ser Gly Ser Val Thr Ala Gly Leu Gln Ala Ile Thr Ser Ser Pro  
35 40 45  
Gly Met Val Asn Leu Leu Ile Gly Trp Ala Lys Thr Lys Phe Ile Gln  
50 55 60  
Pro Ile Arg Glu Ser Lys Leu Phe Gln Ser Arg Ala Cys Gln Ile Thr  
65 70 75 80  
Leu Leu Val Leu Gly Ile Leu Leu Val Val Ala Gly Leu Ala Cys Met  
85 90 95  
Phe Ile Phe His Ser Gln Leu Gly Ala Asn Ala Phe Trp Leu Ile Ile  
100 105 110  
Pro Ala Ala Ile Gly Leu Ile Lys Leu Leu Val Thr Ser Leu Cys Phe  
115 120 125  
Asp Glu Ala Cys Thr Ser Glu Lys Leu Met Val Phe Gln Lys Trp Ala  
130 135 140  
Gly Val Leu Glu Asp Gln Leu Asp Asp Gly Ile Leu Asn Asn Ser Asn  
145 150 155 160  
Lys Ile Phe Gly His Val Lys Thr Glu Gly Asn Thr Ser Arg Ala Xaa  
165 170 175  
Thr Pro Val Leu Asn Asp Gly Arg Gly Xaa Pro Val Leu Ser Pro Leu  
180 185 190  
Val Ser Lys Ile Ala Arg Val  
195

&lt;210&gt;596

&lt;211&gt;556

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;596

Met Ser Lys Leu Ile Arg Arg Val Val Thr Val Leu Ala Leu Thr Ser  
1 5 10 15  
Met Ala Ser Cys Phe Ala Ser Gly Gly Ile Glu Ala Ala Val Ala Glu  
20 25 30  
Ser Leu Ile Thr Lys Ile Val Ala Ser Ala Glu Thr Lys Pro Ala Pro  
35 40 45  
Val Pro Met Thr Ala Lys Lys Val Arg Leu Val Arg Arg Asn Lys Gln  
50 55 60  
Pro Val Glu Gln Lys Ser Arg Gly Ala Phe Cys Asp Lys Glu Phe Tyr  
65 70 75 80

Pro Cys Glu Glu Gly Arg Cys Gln Pro Val Glu Ala Gln Gln Glu Ser  
 85 90 95  
 Cys Tyr Gly Arg Leu Tyr Ser Val Lys Val Asn Asp Asp Cys Asn Val  
 100 105 110  
 Glu Ile Cys Gln Ser Val Pro Glu Tyr Ala Thr Val Gly Ser Pro Tyr  
 115 120 125  
 Pro Ile Glu Ile Leu Ala Ile Gly Lys Lys Asp Cys Val Asp Val Val  
 130 135 140  
 Ile Thr Gln Gln Leu Pro Cys Glu Ala Glu Phe Val Ser Ser Asp Pro  
 145 150 155 160  
 Glu Thr Thr Pro Thr Ser Asp Gly Lys Leu Val Trp Lys Ile Asp Arg  
 165 170 175  
 Leu Gly Ala Gly Asp Lys Cys Lys Ile Thr Val Trp Val Lys Pro Leu  
 180 185 190  
 Lys Glu Gly Cys Cys Phe Thr Ala Ala Thr Val Cys Ala Cys Pro Glu  
 195 200 205  
 Leu Arg Ser Tyr Thr Lys Cys Gly Gln Pro Ala Ile Cys Ile Lys Gln  
 210 215 220  
 Glu Gly Pro Asp Cys Ala Cys Leu Arg Cys Pro Val Cys Tyr Lys Ile  
 225 230 235 240  
 Glu Val Val Asn Thr Gly Ser Ala Ile Ala Arg Asn Val Thr Val Asp  
 245 250 255  
 Asn Pro Val Pro Asp Gly Tyr Ser His Ala Ser Gly Gln Arg Val Leu  
 260 265 270  
 Ser Phe Asn Leu Gly Asp Met Arg Pro Gly Asp Lys Lys Val Phe Thr  
 275 280 285  
 Val Glu Phe Cys Pro Gln Arg Arg Gly Gln Ile Thr Asn Val Ala Thr  
 290 295 300  
 Val Thr Tyr Cys Gly Gly His Lys Cys Ser Ala Asn Val Thr Thr Val  
 305 310 315 320  
 Val Asn Glu Pro Cys Val Gln Val Asn Ile Ser Gly Ala Asp Trp Ser  
 325 330 335  
 Tyr Val Cys Lys Pro Val Glu Tyr Ser Ile Ser Val Ser Asn Pro Gly  
 340 345 350  
 Asp Leu Val Leu His Asp Val Val Ile Gln Asp Thr Leu Pro Ser Gly  
 355 360 365  
 Val Thr Val Leu Glu Ala Pro Gly Gly Glu Ile Cys Cys Asn Lys Val  
 370 375 380  
 Val Trp Arg Ile Lys Glu Met Cys Pro Gly Glu Thr Leu Gln Phe Lys  
 385 390 395 400  
 Leu Val Val Lys Ala Gln Val Pro Gly Arg Phe Thr Asn Gln Val Ala  
 405 410 415  
 Val Thr Ser Glu Ser Asn Cys Gly Thr Cys Thr Ser Cys Ala Glu Thr  
 420 425 430  
 Thr Thr His Trp Lys Gly Leu Ala Ala Thr His Met Cys Val Leu Asp  
 435 440 445  
 Thr Asn Asp Pro Ile Cys Val Gly Glu Asn Thr Val Tyr Arg Ile Cys  
 450 455 460  
 Val Thr Asn Arg Gly Ser Ala Glu Asp Thr Asn Val Ser Leu Ile Leu  
 465 470 475 480  
 Lys Phe Ser Lys Glu Leu Gln Pro Ile Ala Ser Ser Gly Pro Thr Lys  
 485 490 495  
 Gly Thr Ile Ser Gly Asn Thr Val Val Phe Asp Ala Leu Pro Lys Leu  
 500 505 510  
 Gly Ser Lys Glu Ser Val Glu Phe Ser Val Thr Leu Lys Gly Ile Ala  
 515 520 525  
 Pro Gly Asp Ala Arg Gly Glu Ala Ile Leu Ser Ser Asp Thr Leu Thr  
 530 535 540  
 Ser Pro Val Ser Asp Thr Glu Asn Thr His Val Tyr  
 545 550 555  
 <210>597  
 <211>90  
 <212>PRT  
 <213>Chlamydia pneumoniae

&lt;400&gt;597

Met Lys Lys Ala Val Leu Ile Ala Ala Met Phe Cys Gly Val Val Ser  
 1 5 10 15  
 Leu Ser Ser Cys Cys Arg Ile Val Asp Cys Cys Phe Glu Asp Pro Cys  
 20 25 30  
 Ala Pro Ser Ser Cys Asn Pro Cys Glu Val Ile Arg Lys Lys Glu Arg  
 35 40 45  
 Ser Cys Gly Gly Asn Ala Cys Gly Ser Tyr Val Pro Ser Cys Ser Asn  
 50 55 60  
 Pro Cys Gly Ser Thr Glu Cys Asn Ser Gln Ser Pro Gln Val Lys Gly  
 65 70 75 80  
 Cys Thr Ser Pro Asp Gly Arg Cys Lys Gln  
 85 90

&lt;210&gt;598

&lt;211&gt;516

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;598

Met Lys Ser Leu Trp Ser Lys Asp Lys Arg Ile Met Asn Trp Glu Asn  
 1 5 10 15  
 Val Arg Val Arg Val Ala Pro Ser Pro Thr Gly Asp Pro His Val Gly  
 20 25 30  
 Thr Ala Tyr Met Ala Leu Phe Asn Glu Ile Phe Ala Lys Arg Phe Lys  
 35 40 45  
 Gly Lys Met Ile Leu Arg Ile Glu Asp Thr Asp Arg Thr Arg Ser Arg  
 50 55 60  
 Gln Asp Tyr Glu Glu Asn Ile Phe Ser Ala Leu Arg Trp Cys Gly Ile  
 65 70 75 80  
 Gln Trp Asp Glu Gly Pro Asp Val Gly Gly Pro Tyr Gly Pro Tyr Arg  
 85 90 95  
 Gln Ser Glu Arg Thr Lys Ile Tyr Gln Gly Tyr Val Glu Thr Leu Leu  
 100 105 110  
 Lys Thr Asp Cys Ala Tyr Lys Cys Phe Ala Thr Pro Gln Glu Leu Ala  
 115 120 125  
 Glu Met Arg Ala Val Ala Ser Thr Leu Gly Tyr Arg Gly Gly Tyr Asp  
 130 135 140  
 Arg Arg Tyr Arg Tyr Leu Ser Pro Glu Glu Val Ala Ser Arg Glu Ala  
 145 150 155 160  
 Ala Gly Gln Pro Tyr Thr Ile Arg Leu Lys Val Pro Leu Ser Gly Glu  
 165 170 175  
 Cys Val Phe Glu Asp Tyr Ser Lys Gly Arg Val Val Phe Pro Trp Ala  
 180 185 190  
 Asp Val Asp Asp Gln Val Leu Val Lys Ser Asp Gly Phe Pro Thr Tyr  
 195 200 205  
 His Phe Ala Asn Val Ile Asp Asp His Leu Met Gly Ile Thr His Val  
 210 215 220  
 Leu Arg Gly Glu Glu Trp Leu Ser Ser Thr Pro Lys His Leu Leu Leu  
 225 230 235 240  
 Tyr Glu Ala Phe Gly Trp Glu Pro Pro Val Phe Leu His Met Pro Leu  
 245 250 255  
 Leu Leu Asn Pro Asp Gly Thr Lys Leu Ser Lys Arg Lys Asn Pro Thr  
 260 265 270  
 Ser Ile Phe Tyr Tyr Arg Asp Ser Gly Tyr Val Lys Glu Ala Phe Val  
 275 280 285  
 Asn Phe Leu Thr Leu Met Gly Tyr Ser Met Glu Gly Asp Glu Glu Val  
 290 295 300  
 Tyr Ser Leu Glu Arg Ile Ile Glu Thr Phe Asn Pro Arg Arg Ile Gly  
 305 310 315 320  
 Lys Ser Gly Ala Val Phe Asp Ile Gln Lys Leu Asp Trp Met Asn Lys  
 325 330 335  
 His Tyr Leu Asn His Glu Gly Ser Pro Glu Cys Leu Leu Lys Glu Leu  
 340 345 350  
 Gln Gly Trp Leu Leu Asn Asp Glu Phe Phe Leu Lys Ile Leu Pro Leu  
 355 360 365

Cys Gln Ser Arg Ile Thr Thr Leu Ala Glu Phe Ile Asn Leu Thr Ser  
 370 375 380  
 Phe Phe Phe Ser Gly Leu Leu Glu Tyr Arg Val Glu Glu Leu Leu Pro  
 385 390 395 400  
 Gln Ala Leu Ser Pro Glu Lys Ala Ala Ile Leu Leu Tyr Ser Tyr Val  
 405 410 415  
 Lys Tyr Leu Glu Lys Thr Asp Gln Trp Thr Lys Glu Thr Cys Tyr Leu  
 420 425 430  
 Gly Ser Lys Trp Leu Ala Gln Ala Phe Asn Val His His Lys Lys Ala  
 435 440 445  
 Ile Ile Pro Leu Leu Tyr Val Ala Ile Thr Gly Lys Lys Gln Gly Leu  
 450 455 460  
 Pro Leu Phe Asp Ser Ile Glu Ile Leu Gly Lys Pro Arg Ala Arg Ala  
 465 470 475 480  
 Arg Leu Val Tyr Ala Glu Lys Leu Leu Gly Gly Val Pro Lys Lys Leu  
 485 490 495  
 Ala Ala Thr Val Asp Lys Phe Met Gln Arg Glu Asp Phe Glu Glu Ala  
 500 505 510  
 Thr Phe Asp Leu  
 515

&lt;210&gt;599

&lt;211&gt;181

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;599

Met Ala Cys Glu Gln His Glu Gly Cys Tyr Glu Leu Glu Glu Arg Glu  
 1 5 10 15  
 Glu Arg Glu Glu Ile Glu Asp Ile Lys Asp Ser Asp Thr Lys Trp Val  
 20 25 30  
 Ser Ile Thr Gln Ala Ala Lys Leu His Asn Val Thr Arg Gln Ala Ile  
 35 40 45  
 Tyr Val Ala Ile Lys Gln Lys Lys Leu Lys Ala Ser Lys Glu Thr Arg  
 50 55 60  
 Trp Glu Ile Asp Ile Lys Asp Leu Glu Glu Tyr Lys Arg Asn Arg Tyr  
 65 70 75 80  
 Ser Arg Lys Lys Ser Leu Tyr Gln Gly Glu Leu Val Phe Asp Asn Gly  
 85 90 95  
 Lys Gly Cys Tyr Ser Ile Asn Gln Val Ala Gln Ile Leu Gly Ile Pro  
 100 105 110  
 Val Gln Lys Val Tyr Tyr Ala Thr Arg Thr Gly Thr Ile Arg Gly Glu  
 115 120 125  
 Arg Lys Gly Ala Ala Trp Val Ile His Val Ser Glu Ile Glu Arg Tyr  
 130 135 140  
 Lys Asn Glu Tyr Leu Ser Lys Gln Ala Ala Lys Lys Leu Lys Gly Ala  
 145 150 155 160  
 Glu Pro Lys Glu His Gln Ala Pro Asn Phe Glu Pro Pro Thr Glu Ile  
 165 170 175  
 Phe Pro Glu Ser Asn  
 180

&lt;210&gt;600

&lt;211&gt;373

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;600

Met Ser Ile Ala Ile Ala Arg Glu Gln His Ala Ala Ile Leu Asp Met  
 1 5 10 15  
 His Pro Lys Pro Ser Ile Ala Met Phe Ser Ser Glu Gln Ala Arg Thr  
 20 25 30  
 Ser Trp Glu Lys Arg Gln Ala His Pro Tyr Leu Tyr Arg Leu Leu Glu  
 35 40 45  
 Ile Ile Trp Gly Val Val Lys Phe Leu Leu Gly Leu Ile Phe Phe Ile  
 50 55 60  
 Pro Leu Gly Leu Phe Trp Val Leu Gln Lys Ile Cys Gln Asn Phe Ile  
 65 70 75 80



Leu Leu Gly Ala Gly Gly Trp Ile Phe Arg Pro Ile Cys Arg Asp Ser  
                             85                            90                            95  
 Asn Leu Leu Arg Gln Ala Tyr Ala Ala Arg Leu Phe Ser Ala Ser Phe  
                             100                            105                            110  
 Gln Asp His Val Ser Ser Val Arg Arg Val Cys Leu Gln Tyr Asp Glu  
                             115                            120                            125  
 Val Phe Ile Asp Gly Leu Glu Leu Arg Leu Pro Asn Ala Lys Pro Asp  
                             130                            135                            140  
 Arg Trp Met Leu Ile Ser Asn Gly Asn Ser Asp Cys Leu Glu Tyr Arg  
                             145                            150                            155                            160  
 Thr Val Leu Gln Gly Glu Lys Asp Trp Ile Phe Arg Ile Ala Glu Glu  
                             165                            170                            175  
 Ser Gln Ser Asn Ile Leu Ile Phe Asn Tyr Pro Gly Val Met Lys Ser  
                             180                            185                            190  
 Gln Gly Asn Ile Thr Arg Asn Asn Val Val Lys Ser Tyr Gln Ala Cys  
                             195                            200                            205  
 Val Arg Tyr Leu Arg Asp Glu Pro Ala Gly Pro Gln Ala Arg Gln Ile  
                             210                            215                            220  
 Val Ala Tyr Gly Tyr Ser Leu Gly Ala Ser Val Gln Ala Glu Ala Leu  
                             225                            230                            235                            240  
 Ser Lys Glu Ile Ala Asp Gly Ser Asp Ser Val Arg Trp Phe Val Val  
                             245                            250                            255  
 Lys Asp Arg Gly Ala Arg Ser Thr Gly Ala Val Ala Lys Gln Phe Ile  
                             260                            265                            270  
 Gly Ser Leu Gly Val Trp Leu Ala Asn Leu Thr His Trp Asn Ile Asn  
                             275                            280                            285  
 Ser Glu Lys Arg Ser Lys Asp Leu His Cys Pro Glu Leu Phe Ile Tyr  
                             290                            295                            300  
 Gly Lys Asp Ser Gln Gly Asn Leu Ile Gly Asp Gly Leu Phe Lys Lys  
                             305                            310                            315                            320  
 Glu Thr Cys Phe Ala Ala Pro Phe Leu Asp Pro Lys Asn Leu Glu Glu  
                             325                            330                            335  
 Cys Ser Gly Lys Lys Ile Pro Val Ala Gln Thr Gly Leu Arg His Asp  
                             340                            345                            350  
 His Ile Leu Ser Asp Asp Val Ile Lys Glu Val Ala Gly His Ile Arg  
                             355                            360                            365  
 Arg His Phe Asp Asn  
                             370  
 <210>601  
 <211>564  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>601  
 Gln Tyr Lys Asn Leu Leu Trp Asp Phe Ser Pro Lys Gly Pro Cys Gly  
                             1                            5                            10                            15  
 Ile Lys Phe Met Thr Asn Ser Asp Asn Ala Ser Ala Ala Gly Leu Leu  
                             20                            25                            30  
 Trp Ala His Pro Lys Glu Asp Pro Ala Phe Leu Gly Met Ile Ile Lys  
                             35                            40                            45  
 Glu Phe His Leu Pro Pro Thr Val Ala Gln Ile Phe Ile Ser Arg Gly  
                             50                            55                            60  
 Phe Gln Thr Ile Gln Glu Ile His Lys Phe Leu Tyr Ser His Leu Ser  
                             65                            70                            75                            80  
 Ser Leu Tyr Asp Pro Gly Leu Phe Leu Asp Met Ser Lys Ala Val Glu  
                             85                            90                            95  
 Arg Leu Leu Leu Ala Arg Asp Arg Lys Glu His Val Met Ile Tyr Gly  
                             100                            105                            110  
 Asp Ser Asp Val Asp Gly Met Thr Gly Val Ala Leu Leu Val Glu Phe  
                             115                            120                            125  
 Leu Arg Asp Ile Asp Val His Val Ser Tyr Phe Phe Leu Gly Ala Ile  
                             130                            135                            140  
 Leu Lys Gln His Gly Glu Thr Ser Thr Leu Ile Ala Lys Leu Lys Glu  
                             145                            150                            155                            160  
 Glu Gly Ile Thr Leu Leu Ile Thr Val Asp Cys Gly Ile Thr Ala Gly

165 170 175  
 Lys Glu Val Ser Asp Ile Thr Arg Gln Gly Ile Asp Val Ile Ile Thr  
 180 185 190  
 Asp His His Met Pro Thr Gly Lys Ile Pro His Cys Val Val Thr Leu  
 195 200 205  
 Asn Pro Lys Leu Arg Asp His Thr Tyr Pro Asn Arg Glu Leu Thr Gly  
 210 215 220  
 Val Gly Val Ala Phe Lys Leu Ala Arg Gly Val Leu Asn Ala Leu Ile  
 225 230 235 240  
 Ser Arg Asn Leu Val Pro Lys Ser Gln Gly Ser Leu Lys Lys Leu Leu  
 245 250 255  
 Asp Leu Val Thr Leu Gly Thr Ile Thr Asp Val Gly Val Leu Leu Gly  
 260 265 270  
 Glu Asn Arg Val Met Val Arg Tyr Gly Ile Lys Glu Ile Ala Arg Gly  
 275 280 285  
 Ala Arg Pro Gly Leu Asn Lys Leu Cys Ala Leu Cys Gly Val Glu Lys  
 290 295 300  
 Ser Glu Val Thr Ser Thr Asp Ile Val Leu Lys Ile Ala Pro Lys Leu  
 305 310 315 320  
 Asn Ser Leu Gly Arg Leu Asp Asp Pro Ala Lys Gly Val Glu Leu Leu  
 325 330 335  
 Leu Thr Gln Asp Asp Glu Arg Val Asp Ala Leu Ile Met Glu Leu Asp  
 340 345 350  
 Asn Ile Asn Arg Glu Arg Gln Arg Ile Glu Ala Glu Val Phe Gln Asp  
 355 360 365  
 Val Gln Glu Ile Leu Asn Ser Asn Pro Glu Ile Leu Lys Gln Ala Ala  
 370 375 380  
 Ile Val Leu Ser Ser Thr Ala Trp His Ala Arg Val Ile Pro Ile Ile  
 385 390 395 400  
 Ser Ala Arg Leu Ala Lys Thr Tyr Asn Lys Pro Val Val Ile Ile Ala  
 405 410 415  
 Ile Gln Arg Gly Ile Gly Lys Gly Ser Ala Arg Thr Ile Gly Ser Phe  
 420 425 430  
 Pro Leu Leu Gly Val Leu Lys Lys Cys Ser Ser Leu Leu Leu Ser Tyr  
 435 440 445  
 Gly Gly His Asp Phe Ala Ala Gly Val Ile Met Lys Glu Asp Lys Val  
 450 455 460  
 Glu Asp Phe Lys Lys Lys Phe Val His Leu Val Asn Ser Ser Leu Lys  
 465 470 475 480  
 Lys Gly Asp Thr Leu Pro His Leu Glu Ile Asp Ala Tyr Ala Asp Phe  
 485 490 495  
 Asp Ala Ile Asp Tyr Asp Leu Leu Ala Ser Met Glu Leu Phe Glu Pro  
 500 505 510  
 Phe Gly Lys Gly Asn Leu Met Pro Ile Phe Tyr Ser Lys Val Arg Gln  
 515 520 525  
 Val Arg Tyr Pro Lys Val Leu Pro Gly Asn His Leu Lys Leu Tyr Leu  
 530 535 540  
 Ser Gln Lys Glu Arg Asn Leu Glu Gly Val Ala Ser Val Trp Glu Asp  
 545 550 555 560  
 Thr Leu Met His

&lt;210&gt;602

&lt;211&gt;997

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;602

Arg Lys Arg Ser Phe Gly Cys Tyr Ile Phe Ser Pro Asn Thr Asp Cys  
 1 5 10 15  
 Lys His Phe Ser Lys Gly Ser Val Tyr Ile Leu Leu Lys Gly Leu Arg  
 20 25 30  
 Ser Ile Val Ala Lys Tyr Gln Gln Gly Gly Gly Lys Glu Leu Gln Ser  
 35 40 45  
 Phe Glu Lys Asp Leu Gln Asn Leu Tyr Asn Cys Phe Ser His Thr Glu  
 50 55 60

Ala Ile Ser Trp Thr Leu Gly Glu Asp Gln Val Leu Glu Ile Arg His  
 65 70 75 80  
 Pro Leu Gln Gln Phe Leu Asp Val Trp Gly Glu Gly Phe Val Ile Gly  
 85 90 95  
 Lys Glu Gly Cys Ala Phe Leu Glu Val Lys Asp Ile Gln Asp Arg Leu  
 100 105 110  
 Ala Thr Val Asn Gln Ile Glu Lys Asn Arg Gln Ser Asp Leu Val Arg  
 115 120 125  
 Trp His Glu Gln Tyr Arg His Ala Lys Cys Ser Met Asp Leu Gln Glu  
 130 135 140  
 Arg Leu Ser Ala Pro Ile Pro Tyr Gln Asn Leu Phe Leu Glu Asn Met  
 145 150 155 160  
 Lys Leu Asn Met Arg Lys Phe Ser Arg Gly Glu Asn Ile Leu Arg Leu  
 165 170 175  
 Gly Ile Asp Phe Val Gly Gly Arg Gln Leu Leu Leu Ser Phe Lys Asp  
 180 185 190  
 His Gln Gly Lys Gln Leu Thr Asp Lys Glu Asp Ile Leu Lys Val Ser  
 195 200 205  
 Asp Glu Leu Cys Ala Arg Leu Asn Lys Leu Gly Val Ser Glu Ile Glu  
 210 215 220  
 Leu Arg Arg Glu Gly Asp Tyr Ile His Leu Ser Val Pro Gly Ser Ser  
 225 230 235 240  
 Thr Ile Ser Ser Ser Glu Ile Leu Gly Thr Ser Lys Met Ser Phe His  
 245 250 255  
 Val Val Asn Glu Arg Phe Ser Ser Tyr Ser Ala Ser Arg Tyr Glu Val  
 260 265 270  
 Gln Arg Phe Leu Asp Tyr Leu Trp Phe Thr Ser Gln Ala Gln Gly Lys  
 275 280 285  
 Thr Ser Pro Glu Glu Ile Asn Thr Phe Ala Ser Ala Leu Phe Asn Glu  
 290 295 300  
 Glu Val Asp Val Pro Pro Ser Val His Glu Ala Ile Thr Lys Leu Lys  
 305 310 315 320  
 Ser Glu Gly Leu Ala Phe Ser Pro Ser Gly Cys Glu Thr Pro Ser Thr  
 325 330 335  
 Asp Leu Asp Thr Thr Phe Ser Met Ile Ala Ile Gly Lys Asp Ala Glu  
 340 345 350  
 Gln Lys Ala Asn Pro Leu Val Ile Val Phe Arg Asn Tyr Ala Leu Asp  
 355 360 365  
 Gly Ala Ser Leu Lys Asp Ile Arg Pro Glu Phe Ala Ala Gly Glu Gly  
 370 375 380  
 Tyr Val Leu Asn Phe Ser Val Lys Asp Thr Ser Pro Lys Lys Met Ala  
 385 390 395 400  
 Glu Lys Leu Ser Pro Thr Glu Ser Phe His Thr Trp Thr Ser Ala Tyr  
 405 410 415  
 Cys Gln Glu Gly Ile Ser Gly Thr Ala Asn Gly Gln Tyr Ser Ala Asn  
 420 425 430  
 Arg Gly Trp Arg Met Ala Val Val Ile Asp Gly Tyr Met Val Ser Ser  
 435 440 445  
 Pro Ile Leu Asn Val Pro Leu Lys Asn His Ala Ser Val Ser Gly Lys  
 450 455 460  
 Phe Thr His Arg Glu Val Ser Lys Leu Ala Ser Asp Leu Lys Ser Gly  
 465 470 475 480  
 Ala Met Ser Phe Val Pro Glu Val Leu Ser Glu Glu Thr Ile Ser Ser  
 485 490 495  
 Asp Leu Gly Lys Lys Gln Cys Thr Gln Gly Ile Ile Ser Ala Cys Cys  
 500 505 510  
 Gly Leu Ala Met Leu Ile Val Leu Met Ser Val Tyr Tyr Arg Phe Gly  
 515 520 525  
 Gly Val Ile Ala Ser Gly Ala Val Leu Leu Asn Leu Leu Leu Ile Trp  
 530 535 540  
 Ala Ala Leu Gln Tyr Leu Asp Ala Pro Leu Thr Leu Ser Gly Leu Ala  
 545 550 555 560  
 Gly Ile Val Leu Ala Met Gly Met Ala Val Asp Ala Asn Val Leu Val  
 565 570 575

Phe Glu Arg Ile Arg Glu Glu Phe Leu Leu Ser Gln Ser Leu Lys Lys  
 580 585 590  
 Ser Val Glu Lys Gly Tyr Thr Lys Ala Phe Gly Ala Ile Phe Asp Ser  
 595 600 605  
 Asn Leu Thr Thr Val Leu Ala Ser Ala Leu Leu Phe Phe Leu Asp Thr  
 610 615 620  
 Gly Pro Ile Lys Gly Phe Ala Leu Thr Leu Ile Leu Gly Ile Phe Ser  
 625 630 635 640  
 Ser Met Phe Thr Ala Leu Phe Met Thr Lys Phe Phe Phe Met Leu Trp  
 645 650 655  
 Met Asn Lys Thr Gln His Thr Gln Leu His Met Met Asn Lys Phe Val  
 660 665 670  
 Gly Ile Lys His Asp Phe Leu Arg Gly Cys Lys Lys Leu Trp Ala Val  
 675 680 685  
 Ser Gly Ser Val Phe Leu Leu Gly Cys Val Ala Leu Gly Phe Gly Ala  
 690 695 700  
 Trp Asn Ser Val Leu Gly Met Asp Phe Lys Gly Gly Tyr Ala Phe Thr  
 705 710 715 720  
 Phe Asn Pro Lys Glu His Gly Ile Ser Asp Val Ala Gln Met Arg Gly  
 725 730 735  
 Lys Val Val His Lys Leu Gln Glu Ala Gly Leu Ser Ser Arg Asp Phe  
 740 745 750  
 Arg Ile Gln Thr Phe Gly Ser Ser Glu Lys Ile Lys Ile Tyr Phe Ser  
 755 760 765  
 Asp Lys Ala Leu Ser Tyr Thr Lys Ala Asp Thr Ser Leu Ser Pro Lys  
 770 775 780  
 Ile Asn Asp His Glu Leu Ala Leu Ala Val Gly Leu Leu Ser Glu Thr  
 785 790 795 800  
 Gly Leu Asp Phe Ser Thr Glu Thr Leu Asn Glu Thr Gln Asn Phe Trp  
 805 810 815  
 Ser Lys Val Ser Ser Lys Leu Ser Lys Lys Met Arg Tyr Gln Ala Thr  
 820 825 830  
 Ile Gly Leu Leu Gly Ala Leu Ala Ile Ile Leu Leu Tyr Val Ser Leu  
 835 840 845  
 Arg Phe Glu Trp Gln Tyr Ala Phe Ser Ala Val Cys Ala Leu Ile His  
 850 855 860  
 Asp Leu Leu Ala Thr Cys Ala Val Leu Phe Ile Ala His Phe Phe Leu  
 865 870 875 880  
 Lys Lys Ile Gln Ile Asp Leu Gln Ala Ile Gly Ala Leu Met Thr Val  
 885 890 895  
 Leu Gly Tyr Ser Leu Asn Asn Thr Leu Ile Ile Phe Asp Arg Ile Arg  
 900 905 910  
 Glu Asp Arg Gln Ala Asn Leu Phe Thr Pro Met His Val Leu Val Asn  
 915 920 925  
 Asp Ala Leu Gln Lys Thr Phe Ser Arg Thr Val Met Thr Thr Ala Thr  
 930 935 940  
 Thr Leu Ser Val Leu Leu Met Leu Leu Phe Ile Gly Gly Ser Ser Val  
 945 950 955 960  
 Phe Asn Phe Ala Phe Ile Met Thr Ile Gly Ile Leu Leu Gly Thr Leu  
 965 970 975  
 Ser Ser Leu Tyr Ile Ala Pro Pro Leu Leu Leu Phe Met Val Arg Lys  
 980 985 990  
 Glu Asn Arg Ser Lys  
 995

&lt;210&gt;603

&lt;211&gt;435

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;603

Ser Gly Ala Met Lys Gln Lys Val Lys Arg Asn Phe Ala Ile Ile Ile  
 1 5 10 15  
 Cys Val Phe Ala Leu Ala Leu Tyr Tyr Val Leu Pro Thr Cys Leu Tyr  
 20 25 30  
 Tyr Ala Lys Pro Leu Asp Lys Lys Ile Asp Gly Asn Glu Ala Glu His

35 40 45  
 Ile Ile Lys Ser Phe Thr Lys Gln Ala Gln Gln Val Arg Lys Asp Val  
 50 55 60  
 Ile Pro Arg Val Ser Ala Ile Leu Ser Ser Leu His Leu Arg Gly His  
 65 70 75 80  
 Ile Gln Gln His Pro Ala Ile Pro Asp Ile Val Ser Val Arg Phe Lys  
 85 90 95  
 Arg Gly Glu Asp Ala Glu Asp Phe Ile Gly Asn Leu Val His Gly Glu  
 100 105 110  
 Pro Asn Val Pro Ile Lys Ser Ala Arg Leu His Val Val Gly Tyr Ser  
 115 120 125  
 Arg Glu His Asp Asp His Val Ile Gln Val Ala Ser Ser Ile Asn Thr  
 130 135 140  
 Ser Leu Val Glu Ser Asp Phe Ser Phe Val Ser Tyr Ser Ser Glu Asn  
 145 150 155 160  
 Glu Gln Glu Met Ala Ser Ser Ile Leu Gln Arg Val Tyr Ser Ala Cys  
 165 170 175  
 Thr Cys Pro Lys Gln Lys Asp Cys Ser Cys Ser Tyr Pro Ser Ile Trp  
 180 185 190  
 Glu Thr Ala Pro Lys Glu Gln Leu Leu Gln Tyr Ala Lys Asn Leu Ser  
 195 200 205  
 Ser Gly Phe Glu Val Phe Ser Ser Arg Leu Ser Ala Phe Cys Gln Gln  
 210 215 220  
 Ser Phe Ser Ser Asn Gln Asp Arg Leu Ala Phe Leu Ser Arg Leu Ser  
 225 230 235 240  
 Ser Leu Ser Asn Asp Ala Ala Ile Asp Val Glu Asp Gln Lys Leu Leu  
 245 250 255  
 Lys Ser Val Tyr Glu Thr Leu Ser Gln Thr Ala Cys Ile Arg Ser Leu  
 260 265 270  
 Asp Cys Pro Tyr Ile Glu Gly Leu Arg Leu Asp Cys Ser Glu Ser Ser  
 275 280 285  
 Leu Phe Phe Ser Ser Ile Glu Tyr Cys Pro Lys Glu Arg Lys Ile Phe  
 290 295 300  
 Leu Thr Leu His Ser Asp Leu Leu Ala Gln Arg Thr Ser Leu Ser Lys  
 305 310 315 320  
 Glu Gln Arg Leu Asp Phe Asp Ser Arg Leu Ala Val Glu Lys Gln Lys  
 325 330 335  
 Leu Ser Lys Asn Leu Thr Val Gln Val Glu Asp Tyr Asn Asn Gly Phe  
 340 345 350  
 Ser Phe Gln Trp Met Asp Lys Asp Thr Gln Gly Lys Ile Ile Leu Gln  
 355 360 365  
 Gly Glu Arg Leu Leu Gln Gly Ile Ala Glu His Leu Thr Ala Leu Thr  
 370 375 380  
 Leu His Arg Pro Ala Ala Glu Ser Cys Asp Leu Ile Pro Glu Asn Phe  
 385 390 395 400  
 Pro Val Phe Cys Arg Gln Pro Arg Glu Ser Glu Val Leu Ala Val Thr  
 405 410 415  
 Ser Phe Leu Pro Ile Gln Ile Ala Asn Thr Phe Leu Lys Ala Pro Phe  
 420 425 430  
 Thr Ser Tyr  
 435

&lt;210&gt;604

&lt;211&gt;367

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;604

Tyr Glu Ile Ser Ser His Ile His Phe Arg Phe Asp Ser His Ser Asn  
 1 5 10 15  
 Gly His Leu Val Ala Ala Glu Xaa Gly Asn Val His Tyr Val Pro Asn  
 20 25 30  
 Ala Gln Asn Leu Pro Lys Lys Ile Leu Gly Gly Val Leu Ala Cys Phe  
 35 40 45  
 Gly Leu Ala Leu Leu Gly Cys Ala Ala Phe Ala Ala Gly Val Cys Gln  
 50 55 60

Thr Ile Phe Pro Cys Ile Gly Leu Met Ile Leu Gly Leu Val Leu Leu  
 65 70 75 80  
 Gly Phe Ala Tyr Leu Gln Tyr Ser Lys Gly Trp Ser Arg Phe Glu Arg  
 85 90 95  
 Pro Leu Phe Arg Glu Thr Lys Val Phe Glu Lys Pro Ile Asn Trp Leu  
 100 105 110  
 Gly Cys Leu Ser Leu Leu Gln Ser Trp Lys Lys Ile Arg Pro Gly Cys  
 115 120 125  
 Tyr Tyr His Pro Gly Cys Pro Gln Val Glu Ile Cys Glu Gly Ser Gln  
 130 135 140  
 Glu Ile Val Thr Lys Ile Phe Gln Lys Lys Ser Asp Arg Asn Thr Ser  
 145 150 155 160  
 Ile Phe Leu Ile Gln Glu Met Asp Gln Ile Ala Leu Arg Gln Gly Ile  
 165 170 175  
 Glu Lys Ser Ser Leu Ser Arg Lys Thr Phe Ala Ile Asp Pro Ser Val  
 180 185 190  
 Val Ser Ser Leu Leu Ser Glu Ile Gln Arg Glu Glu Gln Gln Tyr Leu  
 195 200 205  
 Asp Pro Lys Val Ile Ser Trp Ser Ser Glu Asp Gln Ala Ser Asp Arg  
 210 215 220  
 Thr His Pro Lys Ser Ala Ile Tyr Val Asn Ile Ser Asp Ala Ala Gln  
 225 230 235 240  
 Glu Pro Gln Gly Arg Cys Tyr Ile Asp Ala Tyr Thr Lys Ala Phe Phe  
 245 250 255  
 Thr Val Leu Asp Gln Ile Gly Asp Pro Asn Ile Val Lys Lys His Thr  
 260 265 270  
 Ile Tyr Val Leu Thr Pro Ile Leu Gly Val Pro Asp Ala Leu Pro Lys  
 275 280 285  
 Glu Glu Gln Glu Asn Leu Lys Leu Leu Ser Gln Ala Ala Phe Leu Tyr  
 290 295 300  
 Ser Ala Glu Gln Val Ala Lys Arg Met Arg Glu Glu Lys Gln Asp Ser  
 305 310 315 320  
 Ile Arg Ile Lys Phe Ile Phe Thr Asp Pro Thr Ser Pro Thr Ser Leu  
 325 330 335  
 Tyr Phe Ser Pro His His Ser Ser Thr Pro His Ser Val Thr Pro Ile  
 340 345 350  
 Ser Leu Ser Gly Phe Val Gly Glu Gln Glu Ser Tyr Thr Phe Ala  
 355 360 365

&lt;210&gt;605

&lt;211&gt;261

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;605

Val Thr Tyr Ala Leu Ile Asn Asp Pro Val Asp Leu Ser Leu Ala Thr  
 1 5 10 15  
 Asn Asn Ala Glu Ser Lys Phe Pro Ser Leu Gln Arg Leu Pro Asn His  
 20 25 30  
 Val Ala Ile Met Asp Gly Asn Arg Arg Trp Tyr Lys Lys His Arg  
 35 40 45  
 Glu Glu Cys Gly His Thr His Thr Ser Gly His Tyr Tyr Gly Ala Lys  
 50 55 60  
 Val Leu Pro Asn Ile Leu Asn Ala Val Leu Asp Leu Gly Ile Lys Val  
 65 70 75 80  
 Leu Thr Leu Tyr Thr Phe Ser Thr Glu Asn Phe Gly Arg Pro Lys Glu  
 85 90 95  
 Glu Ile Gln Glu Ile Phe Asn Ile Phe Tyr Thr Gln Leu Asp Lys Gln  
 100 105 110  
 Leu Pro Tyr Leu Met Glu Asn Glu Ile Cys Leu Arg Cys Ile Gly Asp  
 115 120 125  
 Leu Ser Lys Leu Pro Lys Gly Ile Gln Thr Lys Ile Asn His Val Ser  
 130 135 140  
 Arg Met Thr Ala Ser Phe Ser Arg Leu Glu Leu Val Leu Ala Val Asn  
 145 150 155 160  
 Tyr Gly Gly Lys Asp Glu Leu Val Arg Ala Phe Lys Lys Leu His Val

165 170 175  
 Asp Ile Leu Asn Lys Lys Ile Ser Ser Asp Asp Leu Ser Glu Ser Leu  
 180 185 190  
 Ile Ser Ser Tyr Leu Asp Thr Ser Gly Leu Thr Asp Pro Asp Leu Leu  
 195 200 205  
 Ile Arg Thr Gly Gly Glu Met Arg Val Ser Asn Phe Leu Leu Trp Gln  
 210 215 220  
 Ile Ala Tyr Thr Glu Leu Tyr Ile Thr Asp Thr Leu Trp Pro Asp Phe  
 225 230 235 240  
 Thr Pro Gln Asp Leu Phe Glu Ala Ile Asn Val Tyr Gln Gln Arg Ser  
 245 250 255  
 Arg Arg Gly Gly Lys  
 260

&lt;210&gt;606

&lt;211&gt;308

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;606

Val Leu Asn Ser Asn Lys Phe Lys Ser Lys Thr Gly Ala Tyr Gly Asp  
 1 5 10 15  
 Leu Phe Gln Arg Val Val Val His Ser Leu Val Leu Thr Phe Leu Val  
 20 25 30  
 Leu Leu Leu Tyr Ser Ser Leu Phe Pro Leu Thr Ser Phe Ala Leu Gly  
 35 40 45  
 Phe Ile Thr Ala Thr Cys Gly Ala Val Gly Thr Tyr Glu Tyr Ser Ser  
 50 55 60  
 Met Ala Lys Ala Lys Met His Tyr Pro Leu Ser Thr Phe Ser Ala Ile  
 65 70 75 80  
 Gly Ser Phe Leu Phe Leu Ala Leu Ser Phe Leu Ser Ile Arg Trp Gly  
 85 90 95  
 His Ser Leu Pro Gly Phe Phe Asp Ala Leu Pro Trp Thr Leu Leu Ile  
 100 105 110  
 Val Trp Val Val Trp Ser Ile Phe Arg Val Arg Lys Ser Thr Ile Gly  
 115 120 125  
 Ala Leu Gln Leu Ser Gly Val Thr Leu Phe Ser Ile Leu Tyr Val Gly  
 130 135 140  
 Ile Pro Ile Arg Leu Phe Leu His Val Leu Tyr Ser Phe Ile His Thr  
 145 150 155 160  
 Gln Glu Pro Tyr Leu Gly Ile Trp Trp Ala Ser Phe Leu Ile Ala Thr  
 165 170 175  
 Thr Lys Gly Ala Asp Ile Phe Gly Tyr Phe Phe Gly Lys Ala Phe Gly  
 180 185 190  
 Asn Lys Lys Ile Ala Pro Gln Ile Ser Pro Asn Lys Thr Val Val Gly  
 195 200 205  
 Phe Val Ala Gly Cys Leu Gly Ala Thr Leu Ile Ser Phe Ile Phe Phe  
 210 215 220  
 Leu Gln Ile Pro Thr Arg Phe Ala Ser Tyr Phe Pro Met Pro Ala Ile  
 225 230 235 240  
 Leu Ile Pro Leu Gly Leu Ala Leu Gly Ile Thr Gly Phe Phe Gly Asp  
 245 250 255  
 Ile Ile Glu Ser Ile Phe Lys Arg Asp Ala His Leu Lys Asn Ser Asn  
 260 265 270  
 Lys Leu Lys Ala Val Gly Gly Met Leu Asp Thr Leu Asp Ser Leu Leu  
 275 280 285  
 Leu Ser Thr Pro Ile Ala Tyr Leu Phe Leu Leu Ile Thr Gln Ser Lys  
 290 295 300  
 Glu Phe Ile Gly  
 305

&lt;210&gt;607

&lt;211&gt;220

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;607

Arg Val Tyr Trp Met Ile Ile Thr Ile Asp Gly Pro Ser Gly Thr Gly

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      1           5           10           15
Lys Ser Thr Thr Ala Lys Ala Leu Ala Asp His Leu His Phe Asn Tyr
      20           25           30
Cys Asn Thr Gly Lys Met Tyr Arg Thr Leu Ala Tyr Ala Arg Leu Gln
      35           40           45
Ser Pro Trp Ala Thr Leu Pro Leu Thr Lys Phe Leu Glu Glu Pro Pro
      50           55           60
Phe Ser Phe Thr Phe Ala Thr Gly Gln Pro Leu Glu Ser Phe Phe Asn
      65           70           75           80
Gly His Leu Leu Thr Ser Glu Leu Thr Thr Gln Glu Val Ala Asn Ala
      85           90           95
Ala Ser Glu Leu Ser Gln Leu Pro Glu Val Arg Ala Phe Met Gln Asp
      100           105           110
Leu Gln Arg Arg Tyr Ala Gln Leu Gly Asn Cys Val Phe Glu Gly Arg
      115           120           125
Asp Met Gly Ser Lys Val Phe Pro Asn Ala Asp Leu Lys Ile Phe Leu
      130           135           140
Thr Ser Ser Pro Glu Val Arg Ala Gln Arg Arg Leu Lys Asp Leu Pro
      145           150           155           160
Glu Gly Thr Leu Ser Pro Glu Gln Leu Gln Ala Glu Leu Val Lys Arg
      165           170           175
Asp Ala Ala Asp Ala Gln Arg Ala His Asp Pro Leu Val Ile Pro Glu
      180           185           190
Asn Gly Ile Val Ile Asp Ser Ser Asp Leu Thr Ile Arg Gln Val Leu
      195           200           205
Glu Lys Ile Leu Ala Leu Leu Phe Arg Asn Glu Leu
      210           215           220

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&lt;210&gt;608

&lt;211&gt;234

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;608

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Leu Phe Gly Phe Asp Asn Lys Thr Ser Ser Gly Glu Asn Phe Ser Phe
      1           5           10           15
Thr Ile Ser Lys Arg Ala Met Ile Phe Arg Ile Cys Lys Phe Phe Thr
      20           25           30
Trp Val Ala Phe Ser Leu Phe Tyr Lys Leu Lys Val Tyr Gly Val Lys
      35           40           45
Lys Asn Phe Ile Lys Gly Pro Ala Ile Ile Ala Val Asn His Asn Ser
      50           55           60
Phe Leu Asp Pro Ile Ala Leu His Met Cys Val His Glu Cys Ile Tyr
      65           70           75           80
His Leu Ala Arg Ala Ser Leu Phe Asn Ile Pro Trp Leu Trp Lys Gln
      85           90           95
Trp Gly Cys Phe Pro Val Arg Gln Asp Glu Gly Asn Ser Ala Ala Phe
      100           105           110
Lys Ile Ala Ser Arg Leu Phe Asn Lys Arg Lys Lys Leu Val Ile Tyr
      115           120           125
Pro Glu Gly Ala Arg Ser Pro Asp Gly Gln Leu Gln Pro Gly Lys Val
      130           135           140
Gly Ile Gly Met Met Ala Ala Lys Ser Arg Val Pro Ile Ile Pro Val
      145           150           155           160
Tyr Ile Arg Gly Thr Phe Glu Ala Phe Asn Arg His Gln Lys Ile Pro
      165           170           175
His Val Trp Lys Thr Ile Thr Cys Val Phe Gly Thr Pro Met Tyr Phe
      180           185           190
Asp Asp Ile Ile Gln Asn Pro Glu Ile Lys Asn Lys Glu Thr Tyr Gln
      195           200           205
Ile Ile Thr Asn Gln Thr Met Asn Lys Ile Ala Glu Leu Lys Ala Trp
      210           215           220
Tyr Glu Ser Gly Cys Lys Gly Asp Val Pro
      225           230

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&lt;210&gt;609

&lt;211&gt;580



&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;609

Leu Pro Ser Ser Lys His Gly Met Asn Arg Gly Ala Lys Glu Thr Ser  
 1 5 10 15  
 Pro Lys Leu Met Ser Thr Leu Leu Ser Ile Leu Ser Val Ile Cys Ser  
 20 25 30  
 Gln Ala Ile Ala Lys Ala Phe Pro Asn Leu Glu Asp Trp Ala Pro Glu  
 35 40 45  
 Ile Thr Pro Ser Thr Lys Glu His Phe Gly His Tyr Gln Cys Asn Asp  
 50 55 60  
 Ala Met Lys Leu Ala Arg Val Leu Lys Lys Ala Pro Arg Ala Ile Ala  
 65 70 75 80  
 Glu Ala Ile Val Ala Glu Leu Pro Gln Glu Pro Phe Ser Leu Ile Glu  
 85 90 95  
 Ile Ala Gly Ala Gly Phe Ile Asn Phe Thr Phe Ser Pro Val Phe Leu  
 100 105 110  
 Asn Gln Gln Leu Glu His Phe Lys Asp Ala Leu Lys Leu Gly Phe Gln  
 115 120 125  
 Val Ser Gln Pro Lys Xaa Ile Ile Ile Asp Phe Ser Ser Pro Asn Ile  
 130 135 140  
 Ala Lys Asp Met His Val Gly His Leu Arg Ser Thr Ile Ile Gly Asp  
 145 150 155 160  
 Ser Leu Ala Arg Ile Phe Ser Tyr Val Gly His Asp Val Leu Arg Leu  
 165 170 175  
 Asn His Ile Gly Asp Trp Gly Thr Ala Phe Gly Met Leu Ile Thr Tyr  
 180 185 190  
 Leu Gln Glu Asn Pro Cys Asp Tyr Ser Asp Leu Glu Asp Leu Thr Ser  
 195 200 205  
 Leu Tyr Lys Lys Ala Tyr Val Cys Phe Thr Asn Asp Glu Glu Phe Lys  
 210 215 220  
 Lys Arg Ser Gln Gln Asn Val Val Ala Leu Gln Ala Lys Asp Pro Gln  
 225 230 235 240  
 Ala Ile Ala Ile Trp Glu Lys Ile Cys Glu Thr Ser Glu Lys Ala Phe  
 245 250 255  
 Gln Lys Ile Tyr Asp Ile Leu Asp Ile Val Val Glu Lys Arg Gly Glu  
 260 265 270  
 Ser Phe Tyr Asn Pro Phe Leu Pro Glu Ile Ile Glu Asp Leu Glu Lys  
 275 280 285  
 Lys Gly Leu Leu Thr Val Ser Asn Asp Ala Lys Cys Val Phe His Glu  
 290 295 300  
 Ala Phe Ser Ile Pro Phe Met Val Gln Lys Ser Asp Gly Gly Tyr Asn  
 305 310 315 320  
 Tyr Ala Thr Thr Asp Leu Ala Ala Met Arg Tyr Arg Ile Glu Glu Asp  
 325 330 335  
 His Ala Asp Lys Ile Ile Ile Val Thr Asp Leu Gly Gln Ser Leu His  
 340 345 350  
 Phe Gln Leu Leu Glu Ala Thr Ala Ile Ala Ala Gly Tyr Leu Gln Pro  
 355 360 365  
 Gly Ile Phe Ser His Val Gly Phe Gly Leu Val Leu Asp Pro Gln Gly  
 370 375 380  
 Lys Lys Leu Lys Thr Arg Ser Gly Glu Asn Val Lys Leu Arg Glu Leu  
 385 390 395 400  
 Leu Asp Thr Ala Ile Glu Lys Ala Glu Glu Ala Leu Arg Glu His Arg  
 405 410 415  
 Pro Glu Leu Thr Asp Glu Ala Ile Gln Glu Arg Ala Pro Val Ile Gly  
 420 425 430  
 Ile Asn Ala Ile Lys Tyr Ser Asp Leu Ser Ser His Arg Thr Ser Asp  
 435 440 445  
 Tyr Val Phe Ser Phe Glu Lys Met Leu Arg Phe Glu Gly Asn Thr Ala  
 450 455 460  
 Met Phe Leu Leu Tyr Ala Tyr Val Arg Ile Gln Gly Ile Lys Arg Arg  
 465 470 475 480  
 Leu Gly Ile Ser Gln Leu Ser Leu Glu Gly Pro Pro Glu Ile Gln Glu

485 490 495  
 Pro Ala Glu Glu Leu Leu Ala Leu Thr Leu Leu Arg Phe Pro Glu Ala  
 500 505 510  
 Leu Glu Ser Thr Ile Lys Glu Leu Cys Pro His Phe Leu Thr Asp Tyr  
 515 520 525  
 Leu Tyr Asn Leu Thr His Lys Phe Asn Gly Phe Phe Arg Asp Ser His  
 530 535 540  
 Ile Gln Asp Ser Pro Tyr Ala Lys Ser Arg Leu Phe Leu Cys Ala Leu  
 545 550 555 560  
 Ala Glu Gln Val Leu Ala Thr Gly Met His Leu Leu Gly Leu Lys Thr  
 565 570 575  
 Leu Glu Arg Leu  
 580

&lt;210&gt;610

&lt;211&gt;458

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;610

Met Gln Ile Ala Gln Val Phe Gly Cys Gly Arg Leu Asn Gly Glu Val  
 1 5 10 15  
 Lys Val Ser Gly Ala Lys Asn Ala Ala Thr Lys Leu Leu Val Ala Ser  
 20 25 30  
 Leu Leu Ser Asp Gln Lys Cys Thr Leu Arg Asn Val Pro Asp Ile Gly  
 35 40 45  
 Asp Val Ser Leu Thr Val Glu Leu Cys Lys Ser Leu Gly Ala His Val  
 50 55 60  
 Ser Trp Asp Lys Glu Thr Glu Val Leu Glu Ile Tyr Thr Pro Glu Ile  
 65 70 75 80  
 Gln Cys Thr Arg Val Pro Pro Thr Phe Ser Asn Val Asn Arg Ile Pro  
 85 90 95  
 Ile Leu Leu Leu Gly Ala Leu Leu Gly Arg Cys Pro Glu Gly Val Tyr  
 100 105 110  
 Val Pro Thr Val Gly Gly Asp Ala Ile Gly Glu Arg Thr Leu Asn Phe  
 115 120 125  
 His Phe Glu Gly Leu Lys Gln Leu Gly Val Gln Ile Ser Ser Asp Ser  
 130 135 140  
 Ser Gly Tyr Tyr Ala Lys Ala Pro Arg Gly Leu Lys Gly Asn Tyr Ile  
 145 150 155 160  
 His Leu Pro Tyr Pro Ser Val Gly Ala Thr Glu Asn Leu Ile Leu Ala  
 165 170 175  
 Ala Ile His Ala Lys Gly Arg Thr Val Ile Lys Asn Val Ala Leu Glu  
 180 185 190  
 Ala Glu Ile Leu Asp Leu Val Leu Phe Leu Gln Lys Ala Gly Ala Asp  
 195 200 205  
 Ile Thr Thr Asp Asn Asp Arg Thr Ile Asp Ile Phe Gly Thr Gly Gly  
 210 215 220  
 Leu Gly Ser Val Asp His Thr Ile Leu Pro Asp Lys Ile Glu Ala Ala  
 225 230 235 240  
 Ser Phe Gly Met Ala Ala Val Val Ser Gly Gly Arg Val Phe Val Arg  
 245 250 255  
 Asn Ala Lys Gln Glu Leu Leu Ile Pro Phe Leu Lys Met Leu Arg Ser  
 260 265 270  
 Ile Gly Gly Gly Phe Leu Val Ser Glu Ser Gly Ile Glu Phe Phe Gln  
 275 280 285  
 Glu Arg Pro Leu Val Gly Gly Val Val Leu Glu Thr Asp Val His Pro  
 290 295 300  
 Gly Phe Leu Thr Asp Trp Gln Gln Pro Phe Ala Val Leu Leu Ser Gln  
 305 310 315 320  
 Ala Gln Gly Ser Ser Val Ile His Glu Thr Val His Glu Asn Arg Leu  
 325 330 335  
 Gly Tyr Leu His Gly Leu Gln His Met Gly Ala Glu Cys Gln Leu Phe  
 340 345 350  
 His Gln Cys Leu Ser Thr Lys Ala Cys Arg Tyr Ala Ile Gly Asn Phe  
 355 360 365

Pro His Ser Ala Val Ile His Gly Ala Thr Pro Leu Trp Ala Ser His  
 370 375 380  
 Leu Val Ile Pro Asp Leu Arg Ala Gly Phe Ala Tyr Val Met Ala Ala  
 385 390 395 400  
 Leu Ile Ala Glu Gly Gly Gly Ser Ile Ile Glu Asn Thr His Leu Leu  
 405 410 415  
 Asp Arg Gly Tyr Thr Asn Trp Val Gly Lys Leu Arg Ser Leu Gly Ala  
 420 425 430  
 Lys Ile Gln Ile Phe Asp Met Glu Gln Glu Glu Leu Thr Thr Ser Pro  
 435 440 445  
 Lys Ser Leu Ala Leu Arg Asp Ala Ser Leu  
 450 455

&lt;210&gt;611

&lt;211&gt;96

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;611

His Asn Asp Met Pro Trp Tyr Leu Ser Thr Asp Glu Lys Ala Asp Thr  
 1 5 10 15  
 Gln Leu Pro Cys Ala Glu Asp His Glu Gly Ser Arg Gly Asp Phe His  
 20 25 30  
 Gly Gln Ser His Gly Leu Leu Lys Ile Pro Glu Pro Val Ile Val Glu  
 35 40 45  
 Leu Arg Arg Val Val Ala Ser Pro Ser Gly Thr Leu Asp Glu His Arg  
 50 55 60  
 Phe Pro Arg Gln His Leu Pro Pro Arg Gly Val Leu Glu Lys Ile Leu  
 65 70 75 80  
 Phe Pro Thr Arg Arg Pro Lys Ile Leu Arg Leu Trp Ser Ala Thr Ser  
 85 90 95

&lt;210&gt;612

&lt;211&gt;183

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;612

Ile Met Ala Ala Pro Ile Asn Gln Pro Ser Thr Thr Thr Gln Ile Thr  
 1 5 10 15  
 Gln Thr Gly Gln Thr Thr Thr Thr Thr Thr Val Gly Ser Leu Gly Glu  
 20 25 30  
 His Ser Val Thr Thr Thr Gly Ser Gly Ala Ala Ala Gln Thr Ser Gln  
 35 40 45  
 Thr Val Thr Leu Ile Ala Asp His Glu Met Gln Asp Ile Ala Ser Gln  
 50 55 60  
 Asp Gly Ser Ala Val Ser Phe Ser Ala Glu His Ser Phe Ser Thr Leu  
 65 70 75 80  
 Pro Pro Glu Thr Gly Ser Val Gly Ala Thr Ala Gln Ser Ala Gln Ser  
 85 90 95  
 Ala Gly Leu Phe Ser Leu Ser Gly Arg Thr Gln Arg Arg Asp Ser Glu  
 100 105 110  
 Ile Ser Ser Ser Ser Asp Gly Ser Ser Ile Ser Arg Thr Ser Ser Asn  
 115 120 125  
 Ala Ser Ser Gly Glu Thr Ser Arg Ala Glu Ser Ser Pro Asp Leu Gly  
 130 135 140  
 Asp Leu Asp Ser Leu Ser Gly Ser Glu Arg Ala Glu Gly Ala Glu Asp  
 145 150 155 160  
 Leu Lys Asp Leu Glu Ala Tyr Leu Lys Val Arg Phe His Ile Met Ile  
 165 170 175  
 Leu Pro Ile Lys Arg Leu Phe  
 180

&lt;210&gt;613

&lt;211&gt;550

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;613

Met Lys Pro Arg Ser Ser Phe Ile Phe Val Arg Asn Gly Asp Trp Ser

|   |     |     |     |
|---|-----|-----|-----|
| 1   | 5   | 10  | 15  |
| Thr Ala Glu Ser Ile Lys Val Ser Asn Ala Lys Thr Lys Glu Asn Ile |     |     |     |
| 20  | 25  | 30  |     |
| Thr Lys Pro Ala Asp Leu Glu Met Cys Ile Ala Lys Phe Cys Val Gly |     |     |     |
| 35  | 40  | 45  |     |
| Tyr Glu Thr Ile His Ser Asp Trp Thr Gly Arg Val Lys Pro Thr Met |     |     |     |
| 50  | 55  | 60  |     |
| Glu Glu Arg Ser Gly Ala Thr Gly Asn Tyr Asn His Leu Met Leu Ser |     |     |     |
| 65  | 70  | 75  | 80  |
| Met Lys Phe Lys Thr Ala Val Val Tyr Gly Pro Trp Asn Ala Lys Glu |     |     |     |
| 85  | 90  | 95  |     |
| Ser Ser Ser Gly Tyr Thr Pro Ser Ala Trp Arg Arg Gly Ala Lys Val |     |     |     |
| 100   | 105 | 110 |     |
| Glu Thr Gly Pro Ile Trp Asp Asp Val Gly Gly Leu Lys Gly Ile Asn |     |     |     |
| 115   | 120 | 125 |     |
| Trp Lys Thr Thr Pro Ala Pro Asp Phe Ser Phe Ile Asn Glu Thr Pro |     |     |     |
| 130   | 135 | 140 |     |
| Gly Gly Gly Ala His Ser Thr Ser His Thr Gly Pro Gly Thr Pro Val |     |     |     |
| 145   | 150 | 155 | 160 |
| Gly Ala Thr Val Val Pro Asn Val Asn Val Asn Leu Gly Gly Ile Lys |     |     |     |
| 165   | 170 | 175 |     |
| Val Asp Leu Gly Gly Ile Asn Leu Gly Gly Ile Thr Thr Asn Val Thr |     |     |     |
| 180   | 185 | 190 |     |
| Thr Glu Glu Gly Gly Gly Thr Asn Ile Thr Ser Thr Lys Ser Thr Ser |     |     |     |
| 195   | 200 | 205 |     |
| Thr Asp Asp Lys Val Ser Ile Thr Ser Thr Gly Ser Gln Ser Thr Ile |     |     |     |
| 210   | 215 | 220 |     |
| Glu Glu Asp Thr Ile Gln Phe Asp Asp Pro Gly Gln Gly Glu Asp Asp |     |     |     |
| 225   | 230 | 235 | 240 |
| Asn Ala Ile Pro Gly Thr Asn Thr Pro Pro Pro Gly Pro Pro Pro     |     |     |     |
| 245   | 250 | 255 |     |
| Asn Leu Ser Ser Ser Arg Leu Leu Thr Ile Ser Asn Ala Ser Leu Asn |     |     |     |
| 260   | 265 | 270 |     |
| Gln Val Leu Gln Asn Val Arg Gln His Leu Asn Thr Ala Tyr Asp Ser |     |     |     |
| 275   | 280 | 285 |     |
| Asn Gly Asn Ser Val Ser Asp Leu Asn Gln Asp Leu Gly Gln Val Val |     |     |     |
| 290   | 295 | 300 |     |
| Lys Asn Ser Glu Asn Gly Val Asn Phe Pro Thr Val Ile Leu Pro Lys |     |     |     |
| 305   | 310 | 315 | 320 |
| Thr Thr Gly Asp Thr Asp Pro Ser Gly Gln Ala Thr Gly Gly Val Thr |     |     |     |
| 325   | 330 | 335 |     |
| Glu Gly Gly Gly His Ile Arg Asn Ile Ile Gln Arg Asn Thr Gln Ser |     |     |     |
| 340   | 345 | 350 |     |
| Thr Gly Gln Ser Glu Gly Ala Thr Pro Thr Pro Gln Pro Thr Ile Ala |     |     |     |
| 355   | 360 | 365 |     |
| Lys Ile Val Thr Ser Leu Arg Lys Ala Asn Val Ser Ser Ser Ser Val |     |     |     |
| 370   | 375 | 380 |     |
| Leu Pro Gln Pro Gln Val Ala Thr Thr Ile Thr Pro Gln Ala Arg Thr |     |     |     |
| 385   | 390 | 395 | 400 |
| Ala Ser Thr Ser Thr Thr Ser Ile Gly Thr Gly Thr Glu Ser Thr Ser |     |     |     |
| 405   | 410 | 415 |     |
| Thr Thr Ser Thr Gly Thr Gly Thr Gly Ser Val Ser Thr Gln Ser Thr |     |     |     |
| 420   | 425 | 430 |     |
| Gly Val Gly Thr Pro Thr Thr Thr Thr Arg Ser Thr Gly Thr Ser Ala |     |     |     |
| 435   | 440 | 445 |     |
| Thr Thr Thr Thr Ser Ser Ala Ser Thr Gln Thr Pro Gln Ala Pro Leu |     |     |     |
| 450   | 455 | 460 |     |
| Pro Ser Gly Thr Arg His Val Ala Thr Ile Ser Leu Val Arg Asn Ala |     |     |     |
| 465   | 470 | 475 | 480 |
| Ala Gly Arg Ser Ile Val Leu Gln Gln Gly Gly Arg Ser Gln Ser Phe |     |     |     |
| 485   | 490 | 495 |     |
| Pro Ile Pro Pro Ser Gly Thr Gly Thr Gln Asn Met Gly Ala Gln Leu |     |     |     |
| 500   | 505 | 510 |     |
| Trp Ala Ala Ala Ser Gln Val Ala Ser Thr Leu Gly Gln Val Val Asn |     |     |     |

515 520 525  
 Gln Ala Ala Thr Ala Gly Ser Gln Pro Ser Ser Arg Arg Ser Ser Pro  
 530 535 540  
 Thr Ser Pro Arg Arg Lys  
 545 550  
 <210>614  
 <211>96  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>614  
 Asp Arg Pro Pro Cys Cys Asn Thr Ile Asp Leu Pro Ala Ala Leu Arg  
 1 5 10 15  
 Thr Lys Glu Ile Val Ala Thr Cys Leu Val Pro Glu Gly Arg Gly Ala  
 20 25 30  
 Trp Gly Val Cys Val Glu Ala Asp Asp Val Val Val Val Ala Glu Val  
 35 40 45  
 Pro Val Asp Arg Val Val Val Val Gly Val Pro Thr Pro Val Leu Cys  
 50 55 60  
 Val Glu Thr Leu Pro Val Pro Val Pro Val Leu Val Val Asp Val Leu  
 65 70 75 80  
 Ser Val Pro Val Pro Met Leu Val Val Asp Val Leu Ala Val Leu Ala  
 85 90 95  
 <210>615  
 <211>241  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>615  
 Val Glu Asp Met Ala Gly His Ser Lys Trp Ala Asn Thr Lys His Arg  
 1 5 10 15  
 Lys Glu Arg Ala Asp His Lys Lys Gly Lys Ile Phe Ser Arg Ile Ile  
 20 25 30  
 Lys Glu Leu Ile Ser Ala Val Lys Leu Gly Gly Ala Asp Pro Lys Ser  
 35 40 45  
 Asn Ala Arg Leu Arg Met Val Ile Gln Lys Ala Lys Glu Asn Asn Ile  
 50 55 60  
 Pro Asn Glu Asn Ile Glu Arg Asn Leu Lys Lys Ala Thr Ser Ala Glu  
 65 70 75 80  
 Gln Lys Asn Phe Glu Glu Val Thr Tyr Glu Leu Tyr Gly His Gly Gly  
 85 90 95  
 Val Gly Ile Ile Val Glu Ala Met Thr Asp Asn Lys Asn Arg Thr Ala  
 100 105 110  
 Ser Asp Met Arg Ile Ala Ile Asn Lys Arg Gly Gly Ser Leu Val Glu  
 115 120 125  
 Pro Gly Ser Val Leu Tyr Asn Phe Ala Arg Lys Gly Ala Cys Thr Val  
 130 135 140  
 Ala Lys Ser Ser Ile Asp Glu Glu Val Ile Phe Ser Tyr Ala Ile Glu  
 145 150 155 160  
 Ala Gly Ala Glu Asp Leu Asp Thr Glu Asp Glu Glu Asn Phe Leu Val  
 165 170 175  
 Ile Cys Ala Pro Ser Glu Leu Ala Ser Val Lys Glu Lys Leu Ile Ser  
 180 185 190  
 Gln Gly Ala Thr Cys Ser Glu Asp Arg Leu Ile Tyr Leu Pro Leu Arg  
 195 200 205  
 Leu Val Asp Cys Asp Glu Lys Asp Gly Glu Ala Asn Leu Ala Leu Ile  
 210 215 220  
 Asp Trp Leu Glu Gln Ile Glu Asp Val Asp Asp Val Tyr His Asn Met  
 225 230 235 240  
 Ser  
 <210>616  
 <211>195  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>616

Ser Ala Glu Arg Gly Phe Arg His Pro Ile Val Met Val Glu Thr Val  
 1 5 10 15  
 Leu His Asn Phe Gln Arg Tyr Leu Ser Lys Tyr Leu Tyr Arg Val Phe  
 20 25 30  
 Arg Phe Pro Cys Arg Gln Lys Thr Phe Leu Ser Ser His Arg Val Leu  
 35 40 45  
 Ala Arg Pro Ser Phe Pro Val Asp Tyr Cys Pro Gly Lys Ile Tyr Asp  
 50 55 60  
 Leu Gln Glu Ile Tyr Glu Glu Leu Asn Ala Gln Leu Phe Gln Gly Ala  
 65 70 75 80  
 Leu Arg Leu Gln Ile Gly Trp Phe Gly Arg Lys Ala Thr Arg Lys Gly  
 85 90 95  
 Lys Ser Val Val Leu Gly Leu Phe His Glu Asn Glu Gln Leu Ile Arg  
 100 105 110  
 Ile His Arg Ser Leu Asp Arg Gln Glu Ile Pro Arg Phe Phe Met Glu  
 115 120 125  
 Tyr Leu Val Tyr His Glu Met Val His Ser Val Val Pro Arg Glu Tyr  
 130 135 140  
 Ser Leu Ser Gly Arg Ser Ile Phe His Gly Lys Lys Phe Lys Glu Tyr  
 145 150 155 160  
 Glu Gln Arg Phe Pro Leu Tyr Asp Arg Ala Val Ala Trp Glu Lys Ala  
 165 170 175  
 Asn Ala Tyr Leu Leu Arg Gly Tyr Lys Lys Arg Val Gly Gly Tyr  
 180 185 190  
 Gly Arg Ala  
 195

&lt;210&gt;617

&lt;211&gt;188

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;617

Ser Ile Phe Gly Arg Val Trp Xaa Xaa Phe Met Thr Ala Glu Lys Gln  
 1 5 10 15  
 Asn Thr Gly Ile Leu Gly Leu Glu Ile Arg Tyr Thr Leu Pro Ser Asp  
 20 25 30  
 Ala Thr Tyr Met Leu Lys Trp Leu Asn Asp Pro Lys Ile Leu Arg Gly  
 35 40 45  
 Phe Pro Ile Gln Thr Glu Ala Glu Ile Arg Glu Thr Val Asn Phe Trp  
 50 55 60  
 Val Gly Phe Tyr Arg Tyr His Ser Ser Leu Thr Ala Val Tyr Asn Gly  
 65 70 75 80  
 Asn Val Ala Gly Val Ala Thr Leu Val Leu Asn Pro Tyr Val Lys Val  
 85 90 95  
 Ser His His Ala Leu Ile Ser Ile Ile Val Gly Glu Glu Phe Arg Asn  
 100 105 110  
 Lys Gly Ile Gly Thr Ala Leu Leu Asn Asn Leu Ile His Leu Ala Lys  
 115 120 125  
 Thr Arg Phe Lys Leu Glu Val Leu Tyr Leu Glu Val Tyr Glu Gly Asn  
 130 135 140  
 Pro Ala Leu His Leu Tyr Gln Arg Phe Gly Phe Val Glu Val Gly Arg  
 145 150 155 160  
 Gln Asn Arg Phe Tyr Lys Asp Glu Ile Gly Tyr Leu Ala Lys Thr Thr  
 165 170 175  
 Met Glu Lys Gly Ser Ile Glu Arg Arg Lys Arg Phe  
 180 185

&lt;210&gt;618

&lt;211&gt;139

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;618

Asp Glu Ile Arg Pro Asn Asp Leu Arg Ile Asp Thr Phe Arg Ser Ser  
 1 5 10 15  
 Gly Ala Gly Gly Gln His Val Asn Val Thr Glu Ser Ala Val Arg Ile  
 20 25 30

Thr His Leu Pro Ser Gly Val Val Val Ser Cys Gln Asn Glu Arg Ser  
 35 40 45  
 Gln Ile Gln Asn Arg Glu Ser Cys Met Lys Met Leu Gln Ala Lys Leu  
 50 55 60  
 Tyr Gln Gln Val Leu Gln Glu Arg Leu Glu Lys Gln Ser Leu Asp Arg  
 65 70 75 80  
 Lys Asp Lys Lys Glu Ile Ala Trp Gly Ser Gln Ile Arg Asn Tyr Val  
 85 90 95  
 Phe Gln Pro Tyr Thr Leu Val Lys Asp Val Arg Thr Gly His Glu Thr  
 100 105 110  
 Gly Asn Val Gln Ala Met Leu Asp Gly Glu Leu Leu Asp Glu Phe Ile  
 115 120 125  
 Lys Ala Tyr Leu Ala Glu Phe Gly Xaa Val Ser  
 130 135

&lt;210&gt;619

&lt;211&gt;211

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;619

Leu Arg Gly Leu Phe Asp Leu Asp Lys Lys Gln Lys Glu Leu Gln Val  
 1 5 10 15  
 Leu Glu Glu Glu Ser Ser Glu Glu Asn Phe Trp Gln Asp Ser Val His  
 20 25 30  
 Ala Gly Lys Ile Ser Glu Gln Ile Val Ser Leu Arg Arg Gln Ile Gln  
 35 40 45  
 Glu Tyr Gln Glu Leu Lys Ser Lys Ile Asp Ala Ile Glu Phe Phe Leu  
 50 55 60  
 Glu Asp Ala Asp Ala Leu Glu Asp Pro Ala Ile Cys Glu Asp Leu Glu  
 65 70 75 80  
 Lys Glu Phe Leu Phe Cys Glu Lys Lys Leu Ala Val Trp Glu Thr Gln  
 85 90 95  
 Arg Leu Leu Ser Gly Glu Ala Asp Lys Asn Ser Cys Phe Leu Thr Ile  
 100 105 110  
 Asn Ala Gly Ala Gly Gly Thr Glu Ser Cys Asp Trp Val Glu Met Leu  
 115 120 125  
 Phe Arg Met Tyr Ser Arg Trp Ala Thr Lys His Gln Trp Ala Leu Glu  
 130 135 140  
 Val Val Asp Arg Leu Asp Gly Glu Val Val Gly Ile Lys His Val Thr  
 145 150 155 160  
 Val Lys Phe Ser Gly Met Tyr Ala Tyr Gly Tyr Ala Lys Ala Glu Arg  
 165 170 175  
 Gly Val His Arg Leu Val Arg Ile Ser Pro Phe Asp Ser Asn Gly Lys  
 180 185 190  
 Arg His Thr Ser Phe Ala Ser Val Asp Val Phe Pro Glu Ile Asp Xaa  
 195 200 205  
 Arg Leu Arg  
 210

&lt;210&gt;620

&lt;211&gt;90

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;620

Glu Ser Pro Met Ser Gln Lys Asn Lys Asn Ser Ala Phe Met His Pro  
 1 5 10 15  
 Val Asn Ile Ser Thr Asp Leu Ala Val Ile Val Gly Lys Gly Pro Met  
 20 25 30  
 Pro Arg Thr Glu Ile Val Lys Lys Val Trp Glu Tyr Ile Lys Lys His  
 35 40 45  
 Asn Cys Gln Asp Gln Lys Asn Lys Arg Asn Ile Leu Pro Asp Ala Asn  
 50 55 60  
 Leu Ala Lys Val Phe Gly Ser Ser Asp Pro Ile Asp Met Phe Gln Met  
 65 70 75 80  
 Thr Lys Ala Leu Ser Lys His Ile Val Lys  
 85 90

<210>621  
 <211>218  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>621  
 Ser Ala Thr Ser His Val Pro Met Ile Lys Ser Ser Leu Ile Leu Leu  
 1 5 10 15  
 Ser Gly Gly Gln Gly Thr Arg Phe Gly Ser Lys Ile Pro Lys Gln Tyr  
 20 25 30  
 Leu Pro Leu Asn Gly Thr Pro Leu Val Leu His Ser Leu Lys Ile Leu  
 35 40 45  
 Ser Ser Leu Pro Gln Ile Ala Glu Val Ile Val Val Cys Asp Pro Ser  
 50 55 60  
 Tyr Gln Glu Thr Phe Gln Glu Tyr Pro Val Ser Phe Ala Ile Pro Gly  
 65 70 75 80  
 Glu Arg Arg Gln Asp Ser Val Phe Ser Gly Leu Gln Gln Val Ser Tyr  
 85 90 95  
 Pro Trp Val Ile Ile His Asp Gly Ala Arg Pro Phe Ile Tyr Pro Asp  
 100 105 110  
 Glu Ile His Asp Leu Leu Glu Thr Ala Glu Lys Ile Gly Ala Thr Ala  
 115 120 125  
 Leu Ala Ser Pro Ile Pro Tyr Thr Ile Lys Gln Arg Asn Pro Val Arg  
 130 135 140  
 Thr Leu Asp Arg Asp Asn Leu Ala Ile Ile His Thr Pro Gln Cys Ile  
 145 150 155 160  
 Lys Thr Glu Ile Leu Arg Glu Gly Leu Ala Leu Ala Lys Glu Lys Gln  
 165 170 175  
 Leu Thr Leu Val Asp Asp Ile Glu Ala Ala Glu Ile Ile Gly Lys Pro  
 180 185 190  
 Ser Gln Leu Val Phe Asn Lys His Pro Gln Ile Lys Ile Ser Tyr Pro  
 195 200 205  
 Glu Asp Leu Thr Ile Ala Gln Ala Leu Leu  
 210 215

<210>622  
 <211>267  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>622  
 Met Thr Lys Val Ala Leu Leu Ile Ala Tyr Gln Gly Thr Ala Tyr Ser  
 1 5 10 15  
 Gly Trp Gln Gln Gln Pro Asn Asp Leu Ser Ile Gln Glu Val Ile Glu  
 20 25 30  
 Ser Ser Leu Lys Lys Ile Thr Lys Thr Arg Thr Pro Leu Ile Ala Ser  
 35 40 45  
 Gly Arg Thr Asp Ala Gly Val His Ala Tyr Gly Gln Val Ala His Phe  
 50 55 60  
 Arg Ala Pro Asp His Pro Leu Phe Ala Asn Ala Asn Leu Thr Lys Lys  
 65 70 75 80  
 Ala Leu Asn Ala Ile Leu Pro Lys Asp Ile Val Ile Arg Asp Val Ala  
 85 90 95  
 Leu Phe Asp Asp Asn Phe His Ala Arg Tyr Leu Thr Ile Ala Lys Glu  
 100 105 110  
 Tyr Arg Tyr Ser Leu Ser Arg Leu Ala Lys Pro Leu Pro Trp Gln Arg  
 115 120 125  
 His Phe Cys Tyr Thr Pro Arg His Pro Phe Ser Thr Glu Leu Met Gln  
 130 135 140  
 Glu Gly Ala Asn Leu Leu Ile Gly Thr His Asp Phe Ala Ser Phe Ala  
 145 150 155 160  
 Asn His Gly Arg Asp Tyr Asn Ser Thr Val Arg Thr Ile Tyr Thr Leu  
 165 170 175  
 Asp Ile Val Asp Lys Gly Asp Ser Leu Ser Ile Ile Cys Arg Gly Asn  
 180 185 190  
 Gly Phe Leu Tyr Lys Met Val Arg Asn Leu Val Gly Ala Leu Leu Asp  
 195 200 205



Val Gly Lys Gly Ala Tyr Pro Pro Glu His Leu Leu Asp Ile Leu Glu  
 210 215 220  
 Gln Lys Asn Arg Arg Glu Gly Pro Ser Ala Ala Pro Ala Tyr Gly Leu  
 225 230 235 240  
 Ser Leu His His Val Cys Tyr Ser Ser Pro Tyr Asn Asn Phe Cys Cys  
 245 250 255  
 Glu Gln Cys Ser Val Ser Thr Ser Asn Glu Gly  
 260 265

&lt;210&gt;623

&lt;211&gt;263

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;623

Glu Gly Leu Arg Trp Arg Ser Val Lys Ser Phe Leu Arg Gln Cys Trp  
 1 5 10 15  
 Ile Tyr Ser Met Leu Val Ser Asp Glu Phe Gln Leu Cys Leu Arg Ser  
 20 25 30  
 Gly Met Tyr Leu Glu Asp Tyr Asp Val Phe Phe Phe Asp Leu Asp Gly  
 35 40 45  
 Leu Leu Val Asp Thr Glu Pro Cys Phe Tyr Arg Ala Phe Leu Gln Ala  
 50 55 60  
 Cys Ala Glu Phe Ser Leu Glu Val His Trp Asp Phe Ser Thr Tyr Tyr  
 65 70 75 80  
 Ser His Thr Thr Leu Gly Thr Glu Ile Phe Ser Lys Lys Phe Ile Glu  
 85 90 95  
 Gln Tyr Pro Gln Ala Gln Glu Tyr Met Ala Glu Ile Phe Ala Lys Arg  
 100 105 110  
 Leu Gln Ile Tyr Tyr Lys Ser Leu Glu His Ala Gly Pro Ala Leu Met  
 115 120 125  
 Pro Gly Val Glu Ala Phe Ile Glu Leu Val Leu Ser Leu Asn Lys Thr  
 130 135 140  
 Phe Gly Val Val Thr Asn Ser Pro Arg Asp Ala Thr His Thr Leu Arg  
 145 150 155 160  
 Thr Met Tyr Pro Ile Leu Asn Lys Phe Leu Phe Trp Val Thr Arg Glu  
 165 170 175  
 Asn Tyr Ala Arg Pro Lys Pro Tyr Gly Asp Ser Tyr Asp Tyr Ala Tyr  
 180 185 190  
 Arg Thr Phe Ala Arg Glu Gly Met Lys Val Ile Gly Phe Glu Asp Ser  
 195 200 205  
 Val Lys Gly Leu Arg Ala Leu Ser Lys Ile Pro Ala Thr Leu Val Cys  
 210 215 220  
 Ile Asn Ser Met Ala Glu Ile Thr Pro Glu Asp Tyr Pro Glu Leu Lys  
 225 230 235 240  
 Gly Lys Glu Phe Phe Ser Tyr Pro Ser Phe Asp Val Leu Thr Glu His  
 245 250 255  
 Cys Ser Gln Gln Lys Leu Leu  
 260

&lt;210&gt;624

&lt;211&gt;291

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;624

Lys Asn Pro Asn Ala Leu Leu Lys Lys Ile Gln His Arg Leu Val Lys  
 1 5 10 15  
 Met His Asp Lys Asn Lys Val Leu Tyr Leu Gln Ala Asn His Leu Asn  
 20 25 30  
 Gln Lys Arg Lys Arg His Asn Pro Leu Asn Thr Tyr His Ser Ser Asn  
 35 40 45  
 Thr Thr Glu Thr Arg Arg Leu Pro Thr Tyr Tyr Lys Ser Asn Ile Val  
 50 55 60  
 Leu Lys Met Ile Leu Arg Ile Ser Thr Val Ser Leu Leu Thr Ser Cys  
 65 70 75 80  
 Ser Phe Ser Lys Asn Ser Arg Thr Cys Phe Val Thr Pro Glu Arg Ile  
 85 90 95

Thr Ser Gln Lys Asp Cys Pro Val Leu Leu His Pro Lys Ser Thr Thr  
 100 105 110  
 Ile Ser Pro Pro Leu Tyr Asp Trp Ile Ser Pro Asn Arg Glu Val Ile  
 115 120 125  
 Thr Ala Tyr Ser Phe Tyr Cys Arg Gly Gln Gly Asn Ser Ile Ile Thr  
 130 135 140  
 Pro Glu Gly Val Leu Tyr Asp Cys Asp Gly Leu His His Ser Ile Thr  
 145 150 155 160  
 Lys Glu Glu Phe Arg Tyr Ile His Pro Arg Leu Ile Glu Val Val Arg  
 165 170 175  
 Leu Leu Gln Gln Asp His Pro Lys Val Ser Ile Ile Glu Ala Phe Cys  
 180 185 190  
 Cys Pro Lys His Phe His Phe Leu Glu Ala Ser Gly Ile Ser Leu Ser  
 195 200 205  
 Gln Leu His Leu Gln Gly Thr Ala Ala Thr Phe Ala Leu Asp Pro Pro  
 210 215 220  
 Leu Pro Met Glu Lys Leu Leu Ala Thr Ile Lys Lys Leu Tyr Lys Lys  
 225 230 235 240  
 Asn Ser Asp Pro Ser Leu Ser Asn Phe Ile Val Thr Glu Ala Thr Leu  
 245 250 255  
 Thr Asn Pro Glu Leu Arg Leu Thr Gln Gln Asp Leu Gly Ser His Thr  
 260 265 270  
 Glu Ile Thr Val Glu Ile Leu Asp Asn Leu Gln Asn Lys Glu Ala Leu  
 275 280 285  
 Ser Ser Ala  
 290

&lt;210&gt;625

&lt;211&gt;123

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;625

Ile Val Leu Ser Phe Phe Leu Gly Lys Thr Lys Val Thr Pro Arg Phe  
 1 5 10 15  
 Leu Met Asn Glu Arg Thr Leu Leu Leu Leu Lys Lys Lys Lys Gly  
 20 25 30  
 Leu Phe Leu Ala Ile Leu Asp Leu Thr Gln Thr Glu Ser Ser Leu Thr  
 35 40 45  
 Thr Pro Glu Leu Glu Lys Val Leu Lys Gln Lys Lys Ile Phe Leu Ser  
 50 55 60  
 Cys Ile Asp Arg Val Asp Leu Gln Ile Lys Glu Phe Arg His Ala Phe  
 65 70 75 80  
 Ser Ser Glu Leu Pro Gln Asp Ile Gln Glu Glu Leu Glu Glu Ile Arg  
 85 90 95  
 Asp Val Ile Ile Arg Ile Leu Asp Thr Asp Lys Arg Asn Tyr Ala Gln  
 100 105 110  
 Lys Lys Lys Glu Phe Gly Ile Tyr Glu Arg Pro  
 115 120

&lt;210&gt;626

&lt;211&gt;380

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;626

Ile Arg Ile Asn Ala Thr Met His Arg Lys Lys Arg Asn Leu Val Phe  
 1 5 10 15  
 Met Asn Val Pro Asp Ser Lys Asn Leu His Pro Pro Ala Tyr Glu Leu  
 20 25 30  
 Leu Glu Ile Lys Ala Arg Ile Thr Gln Ser Tyr Lys Glu Ala Ser Ala  
 35 40 45  
 Ile Leu Thr Ala Ile Pro Asp Gly Ile Leu Leu Leu Ser Glu Thr Gly  
 50 55 60  
 His Phe Leu Ile Cys Asn Ser Gln Ala Arg Glu Ile Leu Gly Ile Asp  
 65 70 75 80  
 Glu Asn Leu Glu Ile Leu Asn Arg Ser Phe Thr Asp Val Leu Pro Asp  
 85 90 95

Thr Cys Leu Gly Phe Ser Ile Gln Glu Ala Leu Glu Ser Leu Lys Val  
 100 105 110  
 Pro Lys Thr Leu Arg Leu Ser Leu Cys Lys Glu Ser Lys Glu Lys Glu  
 115 120 125  
 Val Glu Leu Phe Ile Arg Lys Asn Glu Ile Ser Gly Tyr Leu Phe Ile  
 130 135 140  
 Gln Ile Arg Asp Arg Ser Asp Tyr Lys Gln Leu Glu Asn Ala Ile Glu  
 145 150 155 160  
 Arg Tyr Lys Asn Ile Ala Glu Leu Gly Lys Met Thr Ala Thr Leu Ala  
 165 170 175  
 His Glu Ile Arg Asn Pro Leu Ser Gly Ile Val Gly Phe Ala Ser Ile  
 180 185 190  
 Leu Lys Lys Glu Ile Ser Ser Pro Arg His Gln Arg Met Leu Ser Ser  
 195 200 205  
 Ile Ile Ser Gly Thr Arg Ser Leu Asn Asn Leu Val Ser Ser Met Leu  
 210 215 220  
 Glu Tyr Thr Lys Ser Gln Pro Leu Asn Leu Lys Ile Ile Asn Leu Gln  
 225 230 235 240  
 Asp Phe Phe Ser Ser Leu Ile Pro Leu Leu Ser Val Ser Phe Pro Asn  
 245 250 255  
 Cys Lys Phe Val Arg Glu Gly Ala Gln Pro Leu Phe Arg Ser Ile Asp  
 260 265 270  
 Pro Asp Arg Met Asn Ser Val Val Trp Asn Leu Val Lys Asn Ala Val  
 275 280 285  
 Glu Thr Gly Asn Ser Pro Ile Thr Leu Thr Leu His Thr Ser Gly Asp  
 290 295 300  
 Ile Ser Val Thr Asn Pro Gly Thr Ile Pro Ser Glu Ile Met Asp Lys  
 305 310 315 320  
 Leu Phe Thr Pro Phe Phe Thr Thr Lys Arg Glu Gly Asn Gly Leu Gly  
 325 330 335  
 Leu Ala Glu Ala Gln Lys Ile Ile Arg Leu His Gly Gly Asp Ile Gln  
 340 345 350  
 Leu Lys Thr Ser Asp Ser Ala Val Ser Phe Phe Ile Ile Ile Pro Glu  
 355 360 365  
 Leu Leu Ala Ala Leu Pro Lys Glu Arg Ala Ala Ser  
 370 375 380

&lt;210&gt;627

&lt;211&gt;216

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;627

Ile His Ser Phe Leu Ser Thr Arg Thr Val Cys Val Arg Gln Lys Lys  
 1 5 10 15  
 Leu Arg Lys Ile Ser Lys Glu Leu Gln Gln Arg Tyr Ser Arg Leu Gln  
 20 25 30  
 Glu Glu Lys Gln Val Lys Glu Lys Ile Leu Glu Glu Ser Met Asn His  
 35 40 45  
 Phe Ala Asp Leu Phe Glu Lys Ala Gln Lys Glu Asn Met Ala Tyr Lys  
 50 55 60  
 Lys Lys Leu Ala Asp Leu Glu Gly Ala Ala Ala Pro Thr Glu Ile Gly  
 65 70 75 80  
 Glu Asp Asp Asp Trp Val Leu Thr Asp Ser Ala Ser Leu Ser Gln Lys  
 85 90 95  
 Lys Ile Arg Glu Leu Val Glu Glu Asn Gln Glu Leu Leu Lys Ala Leu  
 100 105 110  
 Ala Phe Lys Ser Asn Glu Leu Thr Gln Leu Val Ala Asp Ala Val Glu  
 115 120 125  
 Ala Glu Lys Glu Ile Ser Lys Leu Arg Glu His Ile Glu Glu Gln Lys  
 130 135 140  
 Glu Gly Leu Arg Ala Leu Asp Lys Met His Ala Gln Ala Ile Lys Asp  
 145 150 155 160  
 Cys Glu Val Ala Gln Arg Lys Cys Cys Asp Leu Glu Ser Leu Leu Ser  
 165 170 175  
 Pro Val Arg Glu Asp Ala Gly Met Arg Phe Glu Leu Glu Val Glu Leu

180 185 190  
 Gln Arg Leu Gln Glu Glu Asn Ala Gln Leu Arg Ala Glu Val Glu Arg  
 195 200 205  
 Leu Glu Gln Glu Gln Phe Gln Gly  
 210 215  
 <210>628  
 <211>212  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>628  
 Gly Val Gly Ser Met Thr Ser Arg Arg Asp Ala Gly Arg Leu Tyr Asn  
 1 5 10 15  
 Val Phe Asn Gln Ser Gln Lys Asp Ile Gln Arg Ala His Asp Arg Glu  
 20 25 30  
 Ala Ser Gln Arg Ala Cys Glu Gly Thr Glu Met Asp Cys Ala Glu Arg  
 35 40 45  
 Gln Gln Leu Glu Lys Asp Leu Arg Arg Gln Leu Lys Ser Met Gln Glu  
 50 55 60  
 Trp Ile Glu Met Arg Gly Thr Ile His Gln Gln Glu Lys Ala Trp Arg  
 65 70 75 80  
 Lys Gln Asn Ala Lys Leu Glu Arg Leu Gln Glu Asp Leu Arg Leu Thr  
 85 90 95  
 Gly Ile Ala Phe Asp Glu Gln Ser Leu Phe Tyr Arg Glu Tyr Lys Glu  
 100 105 110  
 Lys Tyr Leu Ser Gln Lys Leu Asp Met Gln Lys Ile Leu Gln Glu Val  
 115 120 125  
 Asn Ala Glu Lys Ser Glu Lys Ala Cys Leu Glu Ser Leu Val His Asp  
 130 135 140  
 Tyr Glu Lys Gln Leu Glu Gln Lys Asp Ala Asn Leu Lys Lys Ala Ala  
 145 150 155 160  
 Ala Val Trp Glu Glu Leu Gly Lys Gln Gln Gln Glu Asp Tyr Glu  
 165 170 175  
 Gln Thr Gln Glu Ile Arg Arg Leu Asn Thr Phe Ile Leu Glu Tyr Gln  
 180 185 190  
 Asp Ser Leu Arg Glu Ala Glu Lys Val Glu Lys Asp Phe Gln Arg Ala  
 195 200 205  
 Thr Thr Lys Val  
 210  
 <210>629  
 <211>290  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>629  
 Ile Ser Leu Arg Arg Lys Ile Leu Arg Pro Asn Asn Phe Ser Ile Gly  
 1 5 10 15  
 Asp Cys Ser Ser Asn Met Ala Thr Pro Ala Gln Lys Ser Pro Thr Phe  
 20 25 30  
 Gln Asp Pro Ser Phe Val Arg Glu Leu Gly Ser Asn His Pro Val Phe  
 35 40 45  
 Ser Pro Leu Thr Leu Glu Glu Arg Gly Glu Met Ala Ile Ala Arg Val  
 50 55 60  
 Gln Gln Cys Gly Trp Asn His Thr Ile Val Lys Val Ser Leu Ile Ile  
 65 70 75 80  
 Leu Ala Leu Leu Thr Ile Leu Gly Gly Gly Leu Leu Val Gly Leu Leu  
 85 90 95  
 Pro Ala Val Pro Met Phe Ile Gly Thr Gly Leu Ile Ala Leu Gly Ala  
 100 105 110  
 Val Ile Phe Ala Leu Ala Leu Ile Leu Cys Leu Tyr Asp Ser Gln Gly  
 115 120 125  
 Leu Pro Glu Glu Leu Pro Pro Val Pro Glu Pro Gln Gln Ile Gln Ile  
 130 135 140  
 Glu Asp Leu Arg Asn Glu Thr Arg Glu Val Leu Glu Gly Thr Leu Leu  
 145 150 155 160  
 Glu Val Leu Leu Lys Asp Arg Asp Ala Lys Asp Pro Ala Val Pro Gln

165 170 175  
 Val Val Val Asp Cys Glu Lys Arg Leu Gly Met Leu Asp Arg Lys Leu  
 180 185 190  
 Arg Arg Glu Glu Glu Ile Leu Tyr Arg Ser Thr Ala His Leu Lys Asp  
 195 200 205  
 Glu Glu Arg Tyr Glu Phe Leu Leu Glu Leu Leu Glu Met Arg Ser Leu  
 210 215 220  
 Val Ala Asp Arg Leu Glu Phe Asn Arg Arg Ser Tyr Glu Arg Phe Val  
 225 230 235 240  
 Gln Gly Ile Met Thr Val Arg Ser Glu Glu Gly Glu Lys Glu Ile Ser  
 245 250 255  
 Arg Leu Gln Asp Leu Ile Ser Leu Gln Gln Gln Thr Val Gln Asp Leu  
 260 265 270  
 Arg Ser Arg Ile Asp Asp Glu Gln Lys Arg Cys Trp Thr Ala Leu Gln  
 275 280 285  
 Arg Ile  
 290

&lt;210&gt;630

&lt;211&gt;337

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;630

Pro Cys His Leu Arg His Glu Tyr Pro Asp Gly Ser Gly Leu Asp Leu  
 1 5 10 15  
 Ile Lys Ile Ile Lys Gln Ser Ser Pro His Thr Pro Val Leu Val Val  
 20 25 30  
 Thr Ala Tyr Gly Ser Ile Glu Asn Ala Val Glu Ala Met His Gln Gly  
 35 40 45  
 Ala Phe Asn Tyr Leu Thr Lys Pro Phe Ser Ser Glu Ala Leu Phe Ala  
 50 55 60  
 Phe Ile Ser Lys Ala Glu Leu Lys Asn Leu Val His Glu Asn Leu  
 65 70 75 80  
 Phe Leu His Ser Gln Thr Thr Pro Asp Ser His Pro Leu Ile Ala Glu  
 85 90 95  
 Ser Lys Ala Met Lys Asp Leu Leu Ala Ile Ala Lys Lys Ala Ala Ser  
 100 105 110  
 Ser Ser Ala Asn Ile Phe Ile His Gly Glu Ser Gly Cys Gly Lys Glu  
 115 120 125  
 Val Leu Ser Phe Phe Ile His His Asn Ser Pro Arg Ala Asn His Pro  
 130 135 140  
 Tyr Ile Lys Val Asn Cys Ala Ala Ile Pro Glu Thr Leu Leu Glu Ser  
 145 150 155 160  
 Glu Leu Phe Gly His Glu Lys Gly Ala Phe Thr Gly Ala Thr Thr Lys  
 165 170 175  
 Lys Ala Gly Arg Phe Glu Leu Ala His Lys Gly Thr Leu Leu Leu Asp  
 180 185 190  
 Glu Ile Thr Glu Val Pro Val Asn Leu Gln Ala Lys Leu Leu Arg Ala  
 195 200 205  
 Ile Gln Glu Lys Glu Ile Glu His Leu Gly Gly Thr Lys Thr Leu Ser  
 210 215 220  
 Val Asp Val Arg Ile Leu Ala Thr Ser Asn Arg Lys Leu Lys Glu Ala  
 225 230 235 240  
 Ile Asp Asp Lys Ser Phe Arg Gln Asp Leu Tyr Tyr Arg Leu Asn Val  
 245 250 255  
 Ile Pro Leu His Leu Pro Pro Leu Arg Asp Arg Gln Asp Asp Ile Leu  
 260 265 270  
 Pro Leu Ala Asn Tyr Phe Leu Asn Lys Phe Cys Arg Met Asn Asn Thr  
 275 280 285  
 Pro Leu Lys Thr Leu Ser Pro Lys Ala Gln Glu Leu Leu Leu Asn Tyr  
 290 295 300  
 Pro Trp Pro Gly Asn Ile Arg Glu Leu Ser Asn Val Leu Glu Arg Val  
 305 310 315 320  
 Val Ile Leu Glu Asn Thr Ser Leu Leu Thr Glu Asp Met Leu Ala Leu  
 325 330 335

Ala

&lt;210&gt;631

&lt;211&gt;223

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;631

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Ser Tyr Gly Glu Leu Phe Ile Leu Ser Thr Leu Leu Lys His His Val
 1          5          10          15
Thr Leu Gly Asp Lys Met Arg Pro His Arg Lys His Val Ser Ser Lys
          20          25          30
Ser Leu Ala Leu Lys Gln Ser Ala Ser Thr His Val Glu Ile Thr Thr
          35          40          45
Lys Ala Phe Arg Leu Ser Met Pro Leu Lys Gln Leu Ile Leu Glu Lys
          50          55          60
Ser Asp His Leu Pro Pro Met Glu Thr Ile Arg Val Val Leu Thr Ser
          65          70          75          80
His Lys Asp Lys Leu Gly Thr Glu Val His Val Val Ala Ser His Gly
          85          90          95
Lys Glu Ile Leu Gln Thr Lys Val His Asn Ala Asn Pro Tyr Thr Ala
          100          105          110
Val Ile Asn Ala Phe Lys Lys Ile Arg Thr Met Ala Asn Lys His Ser
          115          120          125
Asn Lys Arg Lys Asp Arg Thr Lys His Asp Leu Gly Leu Ala Ala Lys
          130          135          140
Glu Glu Arg Ile Ala Ile Gln Glu Glu Gln Glu Asp Arg Leu Ser Asn
          145          150          155          160
Arg Val Ala Ser Cys Arg Arg Pro Arg Cys Leu Gly Phe Ser Lys Asn
          165          170          175
Ser Trp Val Cys Ser Arg Ile Ser Glu Lys Glu Asp Leu Gln Glu Lys
          180          185          190
Asp Glu His Ser Tyr Ala Ile Ser Arg Arg Gly Tyr Pro Pro Ala Arg
          195          200          205
Val Cys Arg Arg Lys Leu Pro Asp Leu Leu Glu Arg Ala Arg Ala
          210          215          220

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&lt;210&gt;632

&lt;211&gt;254

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;632

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Ser Ser Met Gln Ile Cys Val Thr Gly Val Val Leu Arg Ser Arg Pro
 1          5          10          15
Leu Gly Lys Asn His Thr Leu Thr Thr Leu Phe Thr Pro Glu Gly Leu
          20          25          30
Phe Thr Phe Phe Ala Lys Gln Gly Gln Thr Leu Gln Cys Asp Tyr Arg
          35          40          45
Glu Thr Leu Val Pro Ile Ser Leu Gly Lys Tyr Thr Leu His Arg Asn
          50          55          60
Gly Ser Arg Leu Pro Lys Leu Thr His Gly Asp Ile Leu Asn Ala Phe
          65          70          75          80
Glu Ala Ile Lys Gln Thr Tyr Ala Leu Leu Glu Ala Ser Gly Lys Met
          85          90          95
Ile Gln Ala Leu Leu Ala Ser Gln Trp Lys Glu Lys Pro Ser His Lys
          100          105          110
Leu Phe Ser Leu Phe Leu Asn Phe Leu His Arg Ile Pro Glu Ser Ser
          115          120          125
Asn Pro Glu Phe Phe Ala Ala Ile Phe Val Leu Lys Leu Leu Gln Tyr
          130          135          140
Glu Gly Ile Leu Asp Leu Thr Pro Ala Cys Ser Leu Cys Lys Ala Ser
          145          150          155          160
Leu Pro Tyr Ala Cys Tyr Arg Tyr Gln Gly His Lys Leu Cys Lys Lys
          165          170          175
His Gln His Lys Gln Ala Ile Ser Ile Glu Lys Glu Glu Glu Gln Ile
          180          185          190

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Leu Gln Ala Ile Ile His Ala Lys Lys Phe Ser Glu Leu Leu Ala Ile  
 195 200 205  
 Ala Glu Phe Pro Ile Ala Ile Ala Glu Lys Ile Phe Tyr Leu Phe Asp  
 210 215 220  
 Ser Leu Gln Glu Glu Lys Lys Ser Glu Arg Asn Ser Ser Glu Asp Pro  
 225 230 235 240  
 Tyr His Glu Ile Leu Arg Leu Ser Lys Val Val His Pro Tyr  
 245 250

&lt;210&gt;633

&lt;211&gt;207

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;633

Leu Phe Leu Tyr Gly Asp His Asn Leu Gly Phe Ala Cys Arg Tyr Leu  
 1 5 10 15  
 Phe Phe Phe Ile Val Leu Phe Ala Ser Gly Ser Phe Gly Asn Gln Leu  
 20 25 30  
 Leu Ser Val Pro Cys Trp Leu Ser Glu Glu Glu Ser Phe Tyr Thr His  
 35 40 45  
 Arg Phe Asp Phe Ser Lys Ser Tyr Pro Asp Met Glu Asn Met Glu Ile  
 50 55 60  
 Gln Ala Gln Arg Lys Lys Arg Val Glu Phe Asn Leu Thr Gly Glu Phe  
 65 70 75 80  
 Pro Lys Leu Glu Thr Leu Asn Tyr Gln Gly Ser Phe Gly His Leu Arg  
 85 90 95  
 Ala Lys Cys Arg Gly Val Tyr Pro Val Leu Tyr Ala Leu Asn Phe Ser  
 100 105 110  
 Cys Ser Ser Cys Lys Met Asp Met Asp Phe Arg Gly Lys Trp Asn Arg  
 115 120 125  
 Ser Ser Thr Ile Thr Ile Ser Asn Gln Lys Glu Ser Ile Asn Leu Lys  
 130 135 140  
 Leu Pro Lys Asp Val Gly Val Ile Val Asn Thr Lys Thr Ser Leu Lys  
 145 150 155 160  
 Gly Asn Val Cys Pro Gly Ser Thr Phe Ile Lys Gln Gly Trp Gly Val  
 165 170 175  
 Trp Asn Lys Ile Tyr His Asn Asp Leu Val Gly Phe Ser Glu Val Thr  
 180 185 190  
 Leu Ile Phe Asn Val Ser Ser Glu Gly Gly Thr Ile Thr Phe Ser  
 195 200 205

&lt;210&gt;634

&lt;211&gt;219

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;634

Ser Leu Ile Met Arg Cys Thr Ala Tyr Cys Thr Ala Ser Ala Tyr Asn  
 1 5 10 15  
 Leu His Val Leu Phe His Leu Leu Lys Pro Arg Tyr Pro Thr Ile Leu  
 20 25 30  
 Ser Arg Glu Tyr Val Leu Ala Asn Leu Asp Ser Thr Gln Ala Ser Asn  
 35 40 45  
 Gln Leu Ala Ile Phe Phe Pro Phe Gly Val Ala Val Phe Trp Gly Trp  
 50 55 60  
 Glu Glu Ser Glu Glu Ile Lys Leu Leu Gln Thr Ile Val Thr Ala Ser  
 65 70 75 80  
 Pro Glu Ile Leu Pro Gln Pro Glu Ile Asp Cys Tyr Asn Phe His Tyr  
 85 90 95  
 Gly Asp Lys Leu Gln Ile Arg Arg Asp Arg Leu Thr Leu Ala Asp Thr  
 100 105 110  
 Thr Leu Asn Thr Lys Leu Ala Ile Ala Phe Gly Leu Ala Gln Ser Val  
 115 120 125  
 Lys Leu Thr Thr Phe Glu Thr Thr Ile Tyr Lys Thr Ile Glu Asp Ser  
 130 135 140  
 Lys Arg Leu Pro Gln Asp Leu Ala Thr Lys Gly Lys Ile Ser Met Ser  
 145 150 155 160

Arg Lys Ala Ile Ala Lys Lys Ile Gly Lys Leu Phe Leu Asp Lys Ala  
 165 170 175  
 Ser Val Asn Leu His Ser Asp Ile Leu Asp Glu Pro Asp Phe Phe Trp  
 180 185 190  
 Asp His Pro Glu Thr Gln Ala Ile Tyr Arg Asp Val Leu Ser Cys Leu  
 195 200 205  
 Asp Ile Glu Ala Arg Ile Asn Val Leu Ile Val  
 210 215  
 <210>635  
 <211>368  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>635  
 Val Leu Gly Ala Lys Cys Met Ala Phe Lys Arg Lys Thr Arg Trp Leu  
 1 5 10 15  
 Trp Gln Val Leu Ile Leu Ser Val Gly Leu Asn Met Leu Phe Leu Leu  
 20 25 30  
 Leu Phe Tyr Ser Ala Ile Phe Arg Lys Asp Ile Tyr Lys Leu His Leu  
 35 40 45  
 Phe Ser Gly Pro Leu Ile Ala Lys Ser Ser Arg Lys Val Tyr Leu Ser  
 50 55 60  
 Glu Asp Phe Leu Asn Glu Ile Ser Gln Ala Ser Leu Asp Asp Leu Ile  
 65 70 75 80  
 Ser Leu Phe Lys Asp Glu Arg Tyr Met Tyr Gly Arg Pro Ile Lys Leu  
 85 90 95  
 Trp Ala Leu Ser Val Ala Ile Ala Ser His His Ile Asp Ile Thr Pro  
 100 105 110  
 Val Leu Ser Lys Pro Leu Thr Tyr Thr Glu Leu Lys Gly Ser Ser Val  
 115 120 125  
 Arg Trp Leu Leu Pro Asn Ile Asp Leu Lys Asp Phe Pro Val Ile Leu  
 130 135 140  
 Asp Tyr Leu Arg Cys His Lys Tyr Pro Tyr Thr Ser Lys Gly Leu Phe  
 145 150 155 160  
 Leu Leu Ile Glu Lys Met Val Gln Glu Gly Trp Val Asp Glu Asp Cys  
 165 170 175  
 Leu Tyr His Phe Cys Ser Thr Pro Glu Phe Leu Tyr Leu Arg Thr Leu  
 180 185 190  
 Leu Val Gly Ala Asp Val Gln Ala Ser Ser Val Ala Ser Leu Ala Arg  
 195 200 205  
 Met Val Ile Arg Cys Gly Ser Glu Arg Phe Phe His Phe Cys Asn Glu  
 210 215 220  
 Glu Ser Arg Thr Ser Met Ile Ser Ala Thr Gln Arg Gln Lys Val Leu  
 225 230 235 240  
 Lys Ser Tyr Leu Asp Cys Glu Glu Ser Leu Ala Ala Leu Leu Leu Leu  
 245 250 255  
 Val His Asp Ser Asp Val Val Leu His Glu Phe Cys Asp Glu Asp Leu  
 260 265 270  
 Glu Lys Val Ile Arg Leu Met Pro Gln Glu Ser Pro Tyr Ser Gln Asn  
 275 280 285  
 Phe Phe Ser Arg Leu Gln His Ser Pro Arg Arg Glu Leu Ala Cys Met  
 290 295 300  
 Ser Thr Arg Arg Val Glu Ala Pro Arg Val Gln Glu Asp Gln Asp Glu  
 305 310 315 320  
 Glu Tyr Val Val Gln Asp Gly Asp Ser Leu Trp Leu Ile Ala Lys Arg  
 325 330 335  
 Phe Gly Ile Pro Met Asp Lys Ile Ile Gln Lys Asn Gly Leu Asn His  
 340 345 350  
 His Arg Leu Phe Pro Gly Lys Val Leu Lys Leu Pro Ala Lys Gln Ser  
 355 360 365  
 <210>636  
 <211>797  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>636



Leu Arg Leu Ser Ser Met Arg Ile Pro Ile Thr Leu Leu Gln Xaa Tyr  
 1 5 10 15  
 Phe Ser Glu Pro Leu Ser Thr Lys Glu Ile Leu Glu Ala Cys Asp His  
 20 25 30  
 Ile Gly Ile Glu Xaa Glu Ile Glu Asn Thr Thr Leu Tyr Ser Phe Ala  
 35 40 45  
 Ser Val Ile Thr Ala Lys Ile Leu His Thr Ile Pro His Pro Asn Ala  
 50 55 60  
 Asp Lys Leu Arg Val Ala Thr Leu Thr Asp Gly Glu Lys Glu His Gln  
 65 70 75 80  
 Val Val Cys Gly Ala Pro Asn Cys Glu Ala Gly Leu Ile Val Ala Leu  
 85 90 95  
 Ala Leu Pro Gly Ala Lys Leu Phe Asp Ser Glu Gly Gln Ala Tyr Thr  
 100 105 110  
 Ile Lys Lys Ser Lys Leu Arg Gly Val Glu Ser Gln Gly Met Cys Cys  
 115 120 125  
 Gly Ala Asp Glu Leu Gly Leu Asp Glu Leu Gln Ile Gln Glu Arg Ala  
 130 135 140  
 Leu Leu Glu Leu Pro Glu Ala Thr Pro Leu Gly Glu Asp Leu Ala Thr  
 145 150 155 160  
 Val Leu Gly Asn Thr Ser Leu Glu Ile Ser Leu Thr Pro Asn Leu Gly  
 165 170 175  
 His Cys Ala Ser Phe Leu Gly Leu Ala Arg Glu Ile Cys His Val Thr  
 180 185 190  
 Gln Ala Asn Leu Val Ile Pro Lys Glu Phe Ser Phe Glu Asn Leu Pro  
 195 200 205  
 Thr Thr Ala Leu Asp Met Gly Asn Asp Pro Asp Ile Cys Pro Phe Phe  
 210 215 220  
 Ser Tyr Val Val Ile Thr Gly Ile Ser Ala Gln Pro Ser Pro Ile Lys  
 225 230 235 240  
 Leu Gln Glu Ser Leu Gln Ala Leu Lys Gln Lys Pro Ile Asn Ala Ile  
 245 250 255  
 Val Asp Ile Thr Asn Tyr Ile Met Leu Ser Leu Gly Gln Pro Leu His  
 260 265 270  
 Ala Tyr Asp Ala Ser His Val Ala Leu Asp Ser Leu Arg Val Glu Lys  
 275 280 285  
 Leu Ser Thr Pro Glu Ser Leu Thr Leu Leu Asn Gly Glu Thr Val Leu  
 290 295 300  
 Leu Pro Ser Gly Val Pro Val Val Arg Asp Asp His Ser Leu Leu Gly  
 305 310 315 320  
 Leu Gly Gly Val Met Gly Ala Lys Ala Pro Ser Phe Gln Glu Thr Thr  
 325 330 335  
 Thr Thr Thr Val Ile Lys Ala Ala Tyr Phe Leu Pro Glu Ala Leu Arg  
 340 345 350  
 Ala Ser Gln Lys Leu Leu Pro Ile Pro Ser Glu Ser Ala Tyr Arg Phe  
 355 360 365  
 Thr Arg Gly Ile Asp Pro Gln Asn Val Val Pro Ala Leu Gln Ala Ala  
 370 375 380  
 Ile His Tyr Ile Leu Glu Ile Phe Pro Glu Ala Thr Ile Ser Pro Ile  
 385 390 395 400  
 Tyr Ser Ser Gly Glu Ile Cys Arg Glu Leu Lys Glu Val Ala Leu Arg  
 405 410 415  
 Pro Lys Thr Leu Gln Arg Ile Leu Gly Lys Ser Phe Ser Ile Glu Ile  
 420 425 430  
 Leu Ser Gln Lys Leu Gln Ser Leu Gly Phe Ser Thr Thr Pro Gln Glu  
 435 440 445  
 Thr Ser Leu Leu Val Lys Val Pro Ser Tyr Arg His Asp Ile Asn Glu  
 450 455 460  
 Glu Ile Asp Leu Val Glu Glu Ile Cys Arg Thr Glu Ser Trp Asn Ile  
 465 470 475 480  
 Glu Thr Gln Asn Pro Val Ser Cys Tyr Thr Pro Ile Tyr Lys Leu Lys  
 485 490 495  
 Arg Glu Thr Ala Gly Phe Leu Ala Asn Ala Gly Leu Gln Glu Phe Phe  
 500 505 510

Thr Pro Asp Leu Leu Asp Pro Glu Thr Val Ala Leu Thr Arg Lys Glu  
 515 520 525  
 Lys Glu Glu Ile Ser Leu Gln Gly Ser Lys His Thr Thr Val Leu Arg  
 530 535 540  
 Ser Ser Leu Leu Pro Gly Leu Leu Lys Ser Ala Ala Thr Asn Leu Asn  
 545 550 555 560  
 Arg Gln Ala Pro Ser Val Gln Ala Phe Glu Ile Gly Thr Val Tyr Ala  
 565 570 575  
 Lys His Gly Glu Gln Cys Gln Glu Thr Gln Thr Leu Ala Ile Leu Leu  
 580 585 590  
 Thr Glu Asp Gly Glu Ser Arg Ser Trp Leu Pro Lys Pro Ser Leu Ser  
 595 600 605  
 Phe Tyr Ser Leu Lys Gly Trp Val Glu Arg Leu Leu Tyr His His His  
 610 615 620  
 Leu Ser Ile Asp Ala Leu Thr Leu Glu Ser Ser Ala Leu Cys Glu Phe  
 625 630 635 640  
 His Pro Tyr Gln Gln Gly Val Leu Arg Ile His Lys Gln Ser Phe Ala  
 645 650 655  
 Thr Leu Gly Gln Val His Pro Glu Leu Ala Lys Lys Ala Gln Ile Lys  
 660 665 670  
 His Pro Val Phe Phe Ala Glu Leu Asn Leu Asp Leu Leu Cys Lys Met  
 675 680 685  
 Leu Lys Lys Thr Thr Lys Leu Tyr Lys Pro Tyr Ala Ile Tyr Pro Ser  
 690 695 700  
 Ser Phe Arg Asp Leu Thr Leu Thr Val Pro Glu Asp Ile Pro Ala Asn  
 705 710 715 720  
 Leu Leu Arg Gln Lys Leu Leu His Glu Gly Ser Lys Trp Leu Glu Ser  
 725 730 735  
 Val Thr Ile Ile Ser Ile Tyr Gln Asp Lys Ser Leu Glu Thr Arg Asn  
 740 745 750  
 Lys Asn Val Ser Leu Arg Leu Val Phe Gln Asp Tyr Glu Arg Thr Leu  
 755 760 765  
 Ser Asn Gln Asp Ile Glu Glu Glu Tyr Cys Arg Leu Val Ala Leu Leu  
 770 775 780  
 Asn Glu Leu Leu Thr Asp Thr Lys Gly Thr Ile Asn Ser  
 785 790 795

&lt;210&gt;637

&lt;211&gt;328

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;637

Arg Asp Tyr Gln Phe Met Lys Gln Leu Leu Phe Cys Val Cys Val Phe  
 1 5 10 15  
 Ala Met Ser Cys Ser Ala Tyr Ala Ser Pro Arg Arg Gln Asp Pro Ser  
 20 25 30  
 Val Met Lys Glu Thr Phe Arg Asn Asn Tyr Gly Ile Ile Val Ser Gly  
 35 40 45  
 Gln Glu Trp Val Lys Arg Gly Ser Asp Gly Thr Ile Thr Lys Val Leu  
 50 55 60  
 Lys Asn Gly Ala Thr Leu His Glu Val Tyr Ser Gly Gly Leu Leu His  
 65 70 75 80  
 Gly Glu Ile Thr Leu Thr Phe Pro His Thr Thr Ala Leu Asp Val Val  
 85 90 95  
 Gln Ile Tyr Asp Gln Gly Arg Leu Val Ser Arg Lys Thr Phe Phe Val  
 100 105 110  
 Asn Gly Leu Pro Ser Gln Glu Glu Phe Asn Glu Asp Gly Thr Phe  
 115 120 125  
 Val Leu Thr Arg Trp Pro Asp Asn Asn Asp Ser Asp Thr Ile Thr Lys  
 130 135 140  
 Pro Tyr Phe Ile Glu Thr Thr Tyr Gln Gly His Val Ile Glu Gly Ser  
 145 150 155 160  
 Tyr Thr Ser Phe Asn Gly Lys Tyr Ser Ser Ser Ile His Asn Gly Glu  
 165 170 175  
 Gly Val Arg Ser Val Phe Ser Ser Asn Asn Ile Leu Leu Ser Glu Glu

180 185 190  
 Thr Phe Asn Glu Gly Val Met Val Lys Tyr Thr Thr Phe Tyr Pro Asn  
 195 200 205  
 Arg Asp Pro Glu Ser Ile Thr His Tyr Gln Asn Gly Gln Pro His Gly  
 210 215 220  
 Leu Arg Leu Thr Tyr Leu Gln Gly Gly Ile Pro Asn Thr Ile Glu Glu  
 225 230 235 240  
 Trp Arg Tyr Gly Phe Gln Asp Gly Thr Thr Ile Val Phe Lys Asn Gly  
 245 250 255  
 Cys Lys Thr Ser Glu Ile Ala Tyr Val Lys Gly Val Lys Glu Gly Leu  
 260 265 270  
 Glu Leu Arg Tyr Asn Glu Gln Glu Ile Val Ala Glu Glu Val Ser Trp  
 275 280 285  
 Arg Asn Asp Phe Leu His Gly Glu Arg Lys Ile Tyr Ala Gly Gly Ile  
 290 295 300  
 Gln Lys His Glu Trp Tyr Arg Gly Arg Ser Val Ser Lys Ala Lys  
 305 310 315 320  
 Phe Glu Arg Leu Asn Ala Ala Gly  
 325

&lt;210&gt;638

&lt;211&gt;460

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;638

Trp Glu Ser Ser Arg Ser Arg Val Thr Glu Asn Leu Lys Lys Met Arg  
 1 5 10 15  
 Ala Glu Lys Val Arg Glu Asn Ile Ser Lys Val Asn Ser Glu Met Val  
 20 25 30  
 Met Leu Leu Pro Lys Asp Thr Arg Thr Trp Glu Met Glu Arg Arg Tyr  
 35 40 45  
 Met Ser Thr Tyr Glu Gln Leu Gly Ile Leu Ile Lys Ala Lys Tyr Arg  
 50 55 60  
 Lys Lys Gln Glu Ala Ser Val Lys Lys Tyr Gln Val Ala Phe Glu Glu  
 65 70 75 80  
 Lys Arg Gln Ser Pro Met Pro Thr Leu Arg His Leu Glu Met Lys Asn  
 85 90 95  
 Glu Gly Ile Cys Leu Lys Arg Leu Gln Gln Arg Val Asp Lys Met Gln  
 100 105 110  
 Arg Pro Tyr Glu Met Ala Gln Gln Ala Trp Asn Arg Ala Thr Asp Asn  
 115 120 125  
 Tyr Arg Pro Phe Leu Met Ala Leu Thr Arg Ile Glu His Glu Leu Arg  
 130 135 140  
 Leu Ala Asp Tyr Asn Asn Trp Gly Gln Pro Glu Asp Leu Cys Ile Ala  
 145 150 155 160  
 Tyr Ala Asn Val Glu Lys Arg Ala Glu Pro Tyr Lys Lys Ser Leu Leu  
 165 170 175  
 Glu Ile Arg Gln Val Leu Glu Asp Tyr Ala Lys Leu Arg Ser Ala Ile  
 180 185 190  
 Ser Phe Ile Gln Asp Lys Arg Leu Trp Ile Glu Lys Glu Ser Glu Asp  
 195 200 205  
 Leu Arg Ile Leu Ile Asn Pro Phe Phe Ser Ser Phe His Trp Glu Asp  
 210 215 220  
 Asp Ala Gly Gly Ser Arg Glu Met Asn Lys Tyr Val Pro Trp Trp Gln  
 225 230 235 240  
 Leu Ser Arg Val Thr Arg Lys Asp Leu Leu Ala Ala Leu Val Phe Gly  
 245 250 255  
 Ile Arg Ile Ala Leu Val Val Ala Gly Ile Gly Ile Thr Ile Ala Leu  
 260 265 270  
 Ala Ile Gly Ile Met Ile Gly Leu Val Ser Gly Tyr Phe Gly Gly Thr  
 275 280 285  
 Val Asp Met Ile Leu Ser Arg Phe Thr Glu Ile Trp Glu Thr Met Pro  
 290 295 300  
 Val Leu Phe Ile Leu Met Leu Val Ile Ser Ile Thr Gln Gln Lys Ser  
 305 310 315 320

Leu Leu Leu Asn Thr Val Leu Leu Gly Cys Phe Ser Trp Thr Gly Phe  
 325 330 335  
 Ser Arg Tyr Val Arg Ile Glu Val Leu Lys Gln Arg Asp Arg Gly Tyr  
 340 345 350  
 Val Leu Ala Ala Thr Asn Leu Gly Tyr Ser His Tyr Tyr Ile Met Val  
 355 360 365  
 His Gln Ile Leu Pro Asn Ala Ile Val Pro Val Ile Ser Leu Val Pro  
 370 375 380  
 Phe Ala Met Met Ala Met Ile Ser Cys Glu Ala Gly Leu Thr Phe Leu  
 385 390 395 400  
 Gly Leu Gly Glu Glu Ser Ser Ala Ser Trp Gly Asn Leu Met Arg Glu  
 405 410 415  
 Gly Val Thr Gly Phe Pro Ala Glu Ser Ala Val Leu Trp Pro Pro Ala  
 420 425 430  
 Ile Ile Leu Thr Met Leu Leu Ile Ala Ile Ala Leu Ile Gly Asp Gly  
 435 440 445  
 Val Arg Asp Ala Leu Asp Pro Arg Leu Gln Asp Ser  
 450 455 460

&lt;210&gt;639

&lt;211&gt;510

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;639

Val Leu Lys Tyr Ile Leu Lys Arg Leu Val Leu Ile Pro Leu Thr Leu  
 1 5 10 15  
 Phe Ala Ile Val Ser Ile Asn Phe Val Ile Leu Asn Ala Ala Pro Gly  
 20 25 30  
 Asp Val Leu Glu Glu Lys Ser Arg Asp Ala Leu Gly Glu Ala Gly Lys  
 35 40 45  
 Ser Asp Lys Met Arg Ser Tyr Lys Gly Pro Asp Arg Tyr Leu Gln Phe  
 50 55 60  
 Arg Glu His Tyr Gly Leu Thr Leu Pro Ile Phe Phe Asn Thr Arg Pro  
 65 70 75 80  
 Lys Ile Thr His Lys Lys Ile Gln Thr Ala Leu Gln Glu Leu Ala Asn  
 85 90 95  
 Ala Asn Asn Thr Thr Pro Ser Ala Lys Asn Ala Ala Lys Ser Leu Val  
 100 105 110  
 Tyr Trp Gly Asp Cys Ala Lys Phe Val Met Pro Ala Leu Leu Phe Glu  
 115 120 125  
 Ala Asp Asp Ala Ser Arg Asp Lys Tyr Arg His Ile Ala Ala Asp  
 130 135 140  
 Leu Phe Ile Arg Gly Gly Val Leu Gln Gly Phe Val Gly Pro Asn Leu  
 145 150 155 160  
 Ser Pro Glu Gln Arg Ala Gln Asn Lys Glu Ile Ala Glu Ser Asn Ala  
 165 170 175  
 Phe Leu Val Arg Gln Leu Asn Glu Glu Asp Leu Asp Thr Lys Val Glu  
 180 185 190  
 Ala Leu Lys Gly Trp Phe Gln Asp His Gly Gly Thr Glu Val Phe Cys  
 195 200 205  
 Tyr Ser Ser Lys Gln Phe Trp Lys Thr Phe Phe Leu Glu Thr Arg Phe  
 210 215 220  
 Ala Arg Tyr Met Ser Arg Val Leu Arg Leu Asp Phe Gly Thr Leu Arg  
 225 230 235 240  
 Asn Asp Ala His Lys Thr Val Ile Ser Glu Val Ile Lys Arg Leu Arg  
 245 250 255  
 Cys Ser Leu Val Leu Ser Ile Leu Pro Met Ile Val Gly Phe Val Leu  
 260 265 270  
 Cys Gln Ile Phe Gly Met Ile Met Ala Leu Lys Arg Asn Arg Trp Ile  
 275 280 285  
 Asp His Ser Leu Asn Phe Ile Phe Leu Ile Leu Phe Ser Ile Pro Val  
 290 295 300  
 Phe Val Ala Val Pro Trp Ile Leu Asp Asn Phe Val Ile Asn Lys Thr  
 305 310 315 320  
 Ile Pro Phe Thr Thr Ile Pro Met Pro Tyr Ser Gly Leu Arg Ser Pro

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          325          330          335
Pro Glu Val Phe Asn Glu Leu Ser Thr Leu Gly Arg Ile Phe Asp Leu
          340          345          350
Val Ser His Gly Phe Leu Pro Phe Cys Ala Val Ser Tyr Gly Ala Leu
          355          360          365
Ala Ala Gln Ser Arg Leu Ser Arg Ser Ile Phe Leu Glu Val Leu Ser
          370          375          380
Gln Asp Phe Ile Cys Ala Ala Lys Ala Arg Gly Leu Arg Trp Phe Asp
385          390          395          400
Ile Leu Tyr Lys His Val Gly Lys Asn Ala Ala Val Ser Ile Val Thr
          405          410          415
Ser Leu Ala Ser Ser Phe Arg Asn Val Thr Trp Arg Gly Val Gly Cys
          420          425          430
Arg Asn Pro Ile Gln Tyr Arg Trp Leu Trp Glu Leu Leu Ser Gly
          435          440          445
Asn Phe Lys Ser Arg Ser Gln Cys Ser Ser Ile Phe Cys Ala Cys Arg
          450          455          460
Ile Gly Ser Ile Phe Ser Gly Ile Phe Ala Arg Arg Tyr Leu Leu Arg
465          470          475          480
Thr Leu Arg Ser Ser Ser Ser Ala Arg Gly Lys Glu Asp Ile Asn Ala
          485          490          495
Glu Ala Ser Phe Leu Leu Ser Thr Phe Ser Ile Cys Leu Leu
          500          505          510

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&lt;210&gt;640

&lt;211&gt;713

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;640

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Lys Arg Arg Glu Ser Gly His Met Tyr Lys Arg Cys Val Leu Asp Lys
 1          5          10          15
Ile Leu Lys Gly Ile Val Ala Gly Ser Leu Ile Leu Leu Tyr Trp Ser
          20          25          30
Ser Asp Leu Leu Glu Arg Asp Ile Lys Ser Ile Lys Gly Asn Val Arg
          35          40          45
Asp Ile Gln Glu Asp Ile Arg Glu Ile Ser Arg Val Val Lys Gln Gln
          50          55          60
Gln Thr Ser Gln Ala Ile Pro Ala Ala Pro Gly Val Met Leu Ala Pro
65          70          75          80
Lys Leu Val Arg Asp Glu Ala Phe Ala Leu Leu Phe Gly Asp Pro Ser
          85          90          95
Tyr Pro Asn Leu Leu Ser Leu Asp Pro Tyr Lys Gln Gln Thr Leu Pro
          100          105          110
Glu Leu Leu Gly Thr Asn Phe His Pro His Gly Ile Leu Arg Thr Ala
          115          120          125
His Val Gly Lys Pro Glu Xaa Leu Ser Leu Leu Met Ala Leu Ile Cys
          130          135          140
Arg Gly Leu Leu Arg Ser Leu Tyr Ser Ser Leu Ala Ser Pro His Val
145          150          155          160
Gly Lys Tyr Glu Glu Phe Ser Pro Asp Leu Ala Val Lys Ile Glu Glu
          165          170          175
His Leu Val Glu Asp Gly Ser Gly Asp Lys Glu Phe His Ile Tyr Leu
          180          185          190
Arg Pro Asn Val Phe Trp Arg Pro Ile Asp Pro Lys Ala Leu Pro Lys
          195          200          205
His Val Gln Leu Asp Glu Val Phe Gln Arg Pro His Pro Val Thr Ala
          210          215          220
His Asp Ile Lys Phe Phe Tyr Asp Ala Val Met Asn Pro Tyr Val Ala
225          230          235          240
Thr Met Arg Ala Val Ala Leu Arg Ser Cys Tyr Glu Asp Val Val Ser
          245          250          255
Val Ser Val Glu Asn Asp Leu Lys Leu Val Val Arg Trp Lys Ala His
          260          265          270
Thr Val Ile Asn Glu Glu Gly Lys Glu Glu Arg Lys Val Leu Tyr Ser
          275          280          285

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Ala Phe Ser Asn Thr Leu Ser Leu Gln Pro Leu Pro Arg Phe Val Tyr  
 290 295 300  
 Gln Tyr Phe Ala Asn Gly Glu Lys Ile Ile Glu Asp Glu Asn Ile Asp  
 305 310 315 320  
 Thr Tyr Arg Thr Asn Ser Ile Trp Ala Gln Asn Phe Thr Met His Trp  
 325 330 335  
 Ala Asn Asn Tyr Ile Val Ser Cys Gly Ala Tyr Tyr Phe Ala Gly Met  
 340 345 350  
 Asp Asp Glu Lys Ile Val Phe Ser Arg Asn Pro Asp Phe Tyr Asp Pro  
 355 360 365  
 Leu Ala Ala Leu Ile Asp Lys Arg Phe Val Tyr Phe Lys Glu Ser Thr  
 370 375 380  
 Asp Ser Leu Phe Gln Asp Phe Lys Thr Gly Lys Ile Asp Ile Ser Tyr  
 385 390 395 400  
 Leu Pro Pro Asn Gln Arg Asp Asn Phe Tyr Ser Phe Met Lys Ser Ser  
 405 410 415  
 Ala Tyr Asn Lys Gln Val Ala Lys Gly Gly Ala Val Arg Glu Thr Val  
 420 425 430  
 Ser Ala Asp Arg Ala Tyr Thr Tyr Ile Gly Trp Asn Cys Phe Ser Leu  
 435 440 445  
 Phe Phe Gln Ser Arg Gln Val Arg Cys Ala Met Asn Met Ala Ile Asp  
 450 455 460  
 Arg Glu Arg Ile Ile Glu Gln Cys Leu Asp Gly Gln Gly Tyr Thr Ile  
 465 470 475 480  
 Ser Gly Pro Phe Ala Ser Ser Ser Pro Ser Tyr Asn Lys Gln Ile Glu  
 485 490 495  
 Gly Trp His Tyr Ser Pro Glu Glu Ala Ala Arg Leu Leu Glu Glu Glu  
 500 505 510  
 Gly Trp Ile Asp Thr Asp Gly Asp Gly Ile Arg Glu Lys Val Ile Asp  
 515 520 525  
 Gly Val Ile Val Pro Phe Arg Phe Arg Leu Cys Tyr Tyr Val Lys Ser  
 530 535 540  
 Val Thr Ala His Thr Ile Ala Asp Tyr Val Ala Thr Ala Cys Lys Glu  
 545 550 555 560  
 Ile Gly Ile Glu Cys Ser Leu Leu Gly Leu Asp Met Ala Asp Leu Ser  
 565 570 575  
 Gln Ala Phe Asp Glu Lys Asn Phe Asp Ala Leu Leu Met Gly Trp Cys  
 580 585 590  
 Leu Gly Ile Pro Pro Glu Asp Pro Arg Ala Leu Trp His Ser Glu Gly  
 595 600 605  
 Ala Met Glu Lys Gly Ser Ala Asn Val Val Gly Phe His Asn Glu Glu  
 610 615 620  
 Ala Asp Lys Ile Ile Asp Arg Leu Ser Tyr Glu Tyr Asp Leu Lys Glu  
 625 630 635 640  
 Arg Asn Arg Leu Tyr His Arg Phe His Glu Ile Ile His Glu Glu Ala  
 645 650 655  
 Pro Tyr Ala Phe Leu Phe Ser Arg His Cys Ser Leu Leu Tyr Lys Asp  
 660 665 670  
 Tyr Val Lys Asn Ile Phe Val Pro Thr His Arg Thr Asp Leu Ile Pro  
 675 680 685  
 Glu Ala Gln Asp Glu Thr Val Asn Val Thr Met Val Trp Leu Glu Lys  
 690 695 700  
 Lys Glu Asp Pro Cys Leu Ser Thr Ser  
 705 710  
 <210>641  
 <211>210  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>641  
 Gln Phe Pro Arg Ile His Ala Asp Asp Ile Ile Asn Ser Met Asp Glu  
 1 5 10 15  
 Ile Thr Pro Asn Tyr Pro Leu Leu Arg Gln Asp Ser Leu Trp Asn Arg  
 20 25 30  
 Val Arg Val Ser Trp Arg Ala Asp Leu Ser Val Ser Ser Arg Tyr Glu

35 40 45  
 Ile Ala Ser Ala Ile Ala Ile Leu Gly Leu Leu Val Ala Phe Cys Ala  
 50 55 60  
 Ser Ala Ala Val Ser Ile Ile Phe Thr Ala Asn Pro Ser Cys Ser Gly  
 65 70 75 80  
 Ile Tyr Arg Trp Leu Phe Gly Phe Arg Ala Phe Thr Tyr Pro Ile Gly  
 85 90 95  
 Tyr Arg Ser Thr Asn His Arg Asn Tyr Ser Phe Thr Leu Trp Tyr Leu  
 100 105 110  
 Leu Val Ser Ser Thr Thr Arg Val Ile Thr Leu Ser Ile Cys Phe Tyr  
 115 120 125  
 Thr Phe Tyr Leu Gln Ile Ile Phe Leu Phe Leu Tyr Ser Ala Trp Lys  
 130 135 140  
 Pro Leu Arg Gln Pro Leu Phe Cys His Arg Leu Leu Ile Ile Trp Pro  
 145 150 155 160  
 Ile Ser Gly Leu Ser Cys Arg Ile Leu Asn Lys Glu Asn Lys Asn Glu  
 165 170 175  
 Lys Ile Asn Val Ser Pro Ser Phe Ser Ser Cys Ala Ser Cys Cys Arg  
 180 185 190  
 Phe Cys Phe Trp Ile Arg Ile Leu Phe Ser Thr Thr Arg Arg Ser Ser  
 195 200 205  
 Arg Phe  
 210

<210>642

<211>338

<212>PRT

<213>Chlamydia pneumoniae

<400>642

Asp Ser Gly Phe Met Lys Pro Leu Gly Phe Gln Glu Asn Leu Glu Ala  
 1 5 10 15  
 Leu Cys Asn Lys Thr Ser Arg Gln Leu Lys Tyr Leu Ile Lys Gln  
 20 25 30  
 Ile Leu Phe Val Cys Gly Ala Ser Leu Leu Ile Ala Leu Glu Phe Ser  
 35 40 45  
 Phe Phe Leu Tyr Phe Phe Leu Phe Ser Gly Lys Thr Val Ile Pro Ala  
 50 55 60  
 Phe Cys Leu Ala Cys Phe Phe Leu Thr Leu Phe Val Cys Leu Val Thr  
 65 70 75 80  
 Arg Leu Tyr Leu Leu Ser Gly Lys Gly Asp Phe Phe Glu Asp Leu Ala  
 85 90 95  
 Ser Glu Tyr Leu Gln Gly Ala Val Pro Pro Asn Lys Arg Ser Gln Asn  
 100 105 110  
 Ile Val Glu Glu Gln Ser His Leu Ala Ala Ala Thr Lys Leu Ser  
 115 120 125  
 Ile Asn Leu Gln Asn Gln Glu Tyr Ser Leu Leu Ser Glu Ile Phe Lys  
 130 135 140  
 Phe Leu Pro Lys His Asp Leu Ile Arg Lys Phe Ser Cys Phe Cys Phe  
 145 150 155 160  
 Trp Lys Asp Tyr Phe Leu Phe Arg Glu Cys Leu Leu Gln Lys Ala Ile  
 165 170 175  
 Glu Ala Tyr Ile Lys Val Val Gln Ala Ile Pro Val Asp Leu Ser Ala  
 180 185 190  
 His Val Ser Leu Ala Asp Ala Tyr Val Ala Leu Ser Gly Leu Tyr Ala  
 195 200 205  
 Asp Pro Arg Lys Tyr Pro Glu Phe Asp Ala Asn Tyr Trp Ile Pro Ser  
 210 215 220  
 Gly Arg Tyr Ser Ala Glu Ile Gln Glu Lys Phe Phe Ala Thr Ala Arg  
 225 230 235 240  
 Arg Ala Ile Glu Glu Phe Gln Ile Leu Asn Glu Tyr Ala Pro Gly Asn  
 245 250 255  
 Ala Trp Val His Ala Gln Leu Ala Tyr Ser Tyr His Asp Leu Gln Met  
 260 265 270  
 Pro Met Glu Glu Ile Gln Glu Tyr Glu Ile Val Leu Lys Leu Lys Pro  
 275 280 285

Asn Asp Val Glu Thr Met Ser Lys Leu Gly Ile Leu Tyr Phe Gln Gln  
 290 295 300  
 Gly Met Asn Ala Lys Gly Leu Arg Ile Tyr Glu Glu Ile Lys Lys Arg  
 305 310 315 320  
 Asp Tyr Lys Lys Ser Gln Lys Leu Ile Lys Phe Tyr Gly Val Glu Tyr  
 325 330 335  
 Lys Tyr

&lt;210&gt;643

&lt;211&gt;350

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;643

Trp Lys Ile Met Arg Leu Ile Val Leu Met Gln Cys Leu Val Ser Leu  
 1 5 10 15  
 Phe Leu Ala Lys Lys Val Thr Val Thr Pro Ala Tyr Leu Leu Ala  
 20 25 30  
 Asn Phe Gly Gly Pro Arg His Ala Lys Asp Leu Gln Glu Phe Leu Ile  
 35 40 45  
 Ser Leu Leu Thr Asp Arg Asp Val Thr Gly Thr Phe Leu Pro Arg Val  
 50 55 60  
 Leu His Arg His Leu Phe Thr Phe Ile Ala Lys Lys Arg Val Pro Lys  
 65 70 75 80  
 Val Leu Pro Gln Tyr Gln Ser Leu Gln Asn Trp Ser Pro Ile Tyr Phe  
 85 90 95  
 Asp Thr Glu Thr Leu Ala Lys Thr Leu Ser Glu Ile Leu Arg Ala Pro  
 100 105 110  
 Val Ile Pro Phe His Arg Tyr Leu Pro Ser Thr His Glu Lys Thr Leu  
 115 120 125  
 Leu Ala Leu Arg Thr Leu His Thr Arg His Val Ile Gly Ile Pro Leu  
 130 135 140  
 Phe Pro His Phe Thr Tyr Ser Val Thr Gly Ser Ile Val Arg Phe Phe  
 145 150 155 160  
 Met Lys His Val Pro Glu Ile Pro Ile Ser Trp Ile Pro Gln Phe Gly  
 165 170 175  
 Ser Asp Ser Lys Phe Val Ser Leu Ile Thr Cys His Ile Arg Asp Phe  
 180 185 190  
 Leu Gln Lys Leu Gly Ile Leu Glu Lys Glu Cys Cys Phe Leu Phe Ser  
 195 200 205  
 Val His Gly Leu Pro Val Arg Tyr Ile Ser Gln Gly Asp Pro Tyr Ser  
 210 215 220  
 Lys Gln Cys Tyr Glu Ser Phe Ser Ala Ile Thr Thr Asn Phe Lys Gln  
 225 230 235 240  
 Ser Glu Asn Phe Leu Cys Phe Gln Ser Lys Phe Gly Pro Gly Lys Trp  
 245 250 255  
 Leu Ser Pro Ser Thr Ala Gln Leu Cys Gln Asn Ile Asp Thr Asp Lys  
 260 265 270  
 Pro Asn Val Ile Val Val Pro Phe Gly Phe Ile Ser Asp His Leu Glu  
 275 280 285  
 Thr Leu Tyr Glu Ile Glu Arg Asp Tyr Leu Pro Leu Leu Arg Ser Arg  
 290 295 300  
 Gly Tyr Arg Ala Leu Arg Ile Pro Ala Ile Tyr Ser Ser Pro Leu Trp  
 305 310 315 320  
 Val Ser Thr Leu Val Asp Ile Val Lys Glu Asn Ser Thr Val Val Ala  
 325 330 335  
 Glu Glu Leu Ile Lys Ser Gly Lys Lys His Thr Gly Ile Arg  
 340 345 350

&lt;210&gt;644

&lt;211&gt;257

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;644

Asn Ser Glu Ala Gln Leu Asn Val Lys Ile Lys Phe Ser Trp Lys Val  
 1 5 10 15



Asn Phe Leu Ile Cys Leu Leu Ala Val Gly Leu Ile Phe Phe Gly Cys  
                   20                  25                  30  
 Ser Arg Val Lys Arg Glu Val Leu Val Gly Arg Asp Ala Thr Trp Phe  
                   35                  40                  45  
 Pro Lys Gln Phe Gly Ile Tyr Thr Ser Asp Thr Asn Ala Phe Leu Asn  
                   50                  55                  60  
 Asp Leu Val Ser Glu Ile Asn Tyr Lys Glu Asn Leu Asn Ile Asn Ile  
                   65                  70                  75                  80  
 Val Asn Gln Asp Trp Val His Leu Phe Glu Asn Leu Asp Asp Lys Lys  
                   85                  90                  95  
 Thr Gln Gly Ala Phe Thr Ser Val Leu Pro Thr Leu Glu Met Leu Glu  
                   100                  105                  110  
 His Tyr Gln Phe Ser Asp Pro Ile Leu Leu Thr Gly Pro Val Leu Val  
                   115                  120                  125  
 Val Ala Gln Asp Ser Pro Tyr Gln Ser Ile Glu Asp Leu Lys Gly Arg  
                   130                  135                  140  
 Leu Ile Gly Val Tyr Lys Phe Asp Ser Ser Val Leu Val Ala Gln Asn  
                   145                  150                  155                  160  
 Ile Pro Asp Ala Val Ile Ser Leu Tyr Gln His Val Pro Ile Ala Leu  
                   165                  170                  175  
 Glu Ala Leu Thr Ser Asn Cys Tyr Asp Ala Leu Leu Ala Pro Val Ile  
                   180                  185                  190  
 Glu Val Thr Ala Leu Ile Glu Thr Ala Tyr Lys Gly Arg Leu Lys Ile  
                   195                  200                  205  
 Ile Ser Lys Pro Leu Asn Ala Asp Gly Leu Arg Leu Ala Ile Leu Lys  
                   210                  215                  220  
 Gly Thr Asn Gly Asp Leu Leu Glu Gly Phe Asn Ala Gly Leu Val Lys  
                   225                  230                  235                  240  
 Thr Arg Arg Ser Gly Lys Tyr Asp Ala Ile Lys Gln Arg Tyr Arg Leu  
                   245                  250                  255  
 Pro

&lt;210&gt;645

&lt;211&gt;196

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;645

Leu Arg Lys Leu Cys Ser Ser Arg Gly Asp Val Arg Ile Leu Ala Gly  
   1                  5                  10                  15  
 Lys Tyr Lys Gly Lys Ser Leu Lys Thr Phe Ser Asn Pro His Ile Arg  
                   20                  25                  30  
 Pro Thr Ser Gly Leu Val Lys Glu Ala Phe Phe Ser Ile Cys Arg Glu  
                   35                  40                  45  
 Asp Ile Glu Gly Ala Ala Phe Leu Asp Leu Phe Ala Gly Met Gly Ala  
                   50                  55                  60  
 Ile Gly Phe Glu Ala Leu Ser Arg Gly Ala Ala Ser Val Val Phe Val  
                   65                  70                  75                  80  
 Asp Ile Ser Ile Lys Ala Ile Gln Leu Ile His Thr Asn Ser Ala Leu  
                   85                  90                  95  
 Leu Gly Glu Gln Leu Pro Val Val Ile Phe Arg Gln Asp Ala Gln Ser  
                   100                  105                  110  
 Ala Ile Gln Arg Leu Ile Lys Gln Lys Arg Ser Phe Asp Leu Ile Tyr  
                   115                  120                  125  
 Ile Asp Pro Pro Tyr Glu Leu Cys Asn Cys Tyr Val Glu Thr Leu Leu  
                   130                  135                  140  
 Gln Lys Ile Val Ser Gly Asn Ile Leu Asn Pro Glu Gly Thr Leu Phe  
                   145                  150                  155                  160  
 Leu Glu Asn Ala Ser Asp Glu Glu Ile Ala Cys Glu Gly Leu Thr Leu  
                   165                  170                  175  
 Arg Arg Arg Arg Lys Leu Gly Lys Thr Tyr Leu Ala Glu Tyr Ile Val  
                   180                  185                  190  
 Glu Lys Asp Pro  
                   195

&lt;210&gt;646

&lt;211&gt;262

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;646

Ser Ser Tyr Ser Arg Arg Gln Leu Arg Phe Tyr Thr Gly Ser Leu Gln  
 1 5 10 15  
 Met His Ile Tyr Gly Leu Ala Asp Leu His Leu Ala Leu Gly Val Pro  
 20 25 30  
 Glu Lys Thr Met Glu Val Phe Gly Asp Pro Trp Ile Gly Tyr His Gln  
 35 40 45  
 Lys Ile Cys Ser Glu Trp Gln Ala Val Val His Pro Glu Asp Ile Val  
 50 55 60  
 Leu Leu Pro Gly Asp Ile Ser Trp Ala Met Asn Leu Ser Glu Ala His  
 65 70 75 80  
 Lys Asp Phe Ala Phe Ile Gly Asp Leu Pro Gly Thr Lys Tyr Met Ile  
 85 90 95  
 Arg Gly Asn His Asp Tyr Trp Ser Ser Ala Ser Thr Ser Lys Ile Leu  
 100 105 110  
 Gln Ala Leu Pro Pro Ser Leu Tyr Tyr Leu Asn Gln Gly Phe Ala Leu  
 115 120 125  
 Leu Thr Pro His Leu Ala Val Val Gly Val Arg Leu Trp Asp Ser Pro  
 130 135 140  
 Thr Ile Cys Val Lys Lys Glu Asn Phe Leu Thr Pro Ser Thr Gln Glu  
 145 150 155 160  
 Gln Ser Tyr Thr Glu Gln Asp Glu Lys Ile Phe Leu Arg Glu Leu Gly  
 165 170 175  
 Arg Leu Lys Arg Ala Phe Ala Ala Leu Pro Lys Glu Val Thr Glu Val  
 180 185 190  
 Ile Val Met Thr His Tyr Pro Pro Ile Ser Ser Asp Gly Thr Pro Gly  
 195 200 205  
 Pro Ile Ser Glu Phe Leu Glu Ala Asp Gly Arg Val Ser Leu Cys Leu  
 210 215 220  
 Phe Gly His Ile His Lys Val Gln Arg Pro Ile Asp Gly Phe Gly Asn  
 225 230 235 240  
 Ile Arg Gly Ile His Tyr Ile Leu Val Ala Ala Asp Tyr Val Asn Phe  
 245 250 255  
 Val Pro Gln Glu Val Met  
 260

&lt;210&gt;647

&lt;211&gt;330

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;647

Pro Asn Leu Val Ser Gly Tyr Ala Asp Ala Ile Arg Lys Asn Leu Leu  
 1 5 10 15  
 Tyr Phe Glu Asp Thr Glu Ile Glu Tyr Phe Leu Ile Leu Ser Gly Asp  
 20 25 30  
 Gln Leu Tyr Asn Met Asp Phe Arg Ser Ile Val Asp Thr Ala Ile Arg  
 35 40 45  
 Thr His Val Asp Met Val Leu Val Ala Gln Pro Ile Pro Glu Lys Asp  
 50 55 60  
 Ala Tyr Arg Met Gly Val Leu Asp Ile Asp Ser Glu Gly Lys Leu Ile  
 65 70 75 80  
 Asp Phe Tyr Glu Lys Pro Gln Glu Lys Glu Val Leu Lys Arg Phe Gln  
 85 90 95  
 Leu Ser Ser Glu Asp Arg Arg Ile His Lys Leu Thr Glu Asp Ser Gly  
 100 105 110  
 Asp Phe Leu Gly Ser Met Gly Ile Tyr Leu Phe Arg Arg Asp Ser Leu  
 115 120 125  
 Phe Ser Leu Leu Arg Glu Glu Glu Gly Asn Asp Phe Gly Lys His Leu  
 130 135 140  
 Ile Gln Ala Gln Met Lys Arg Gly Gln Val Gln Thr Leu Leu Tyr Asn  
 145 150 155 160  
 Gly Tyr Trp Ala Asp Ile Gly Thr Ile Glu Ser Tyr Tyr Glu Ala Asn

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      165      170      175
Ile Ala Leu Thr Gln Lys Pro His Ala Glu Lys Arg Gly Leu Asn Cys
      180      185      190
Tyr Asp Asp Asn Gly Met Ile Tyr Ser Lys Asn His His Leu Pro Gly
      195      200      205
Ala Ile Ile Thr Asp Ser Met Ile Ser Ser Ser Leu Leu Cys Glu Gly
      210      215      220
Cys Val Ile Asn Thr Ser His Val Ser Arg Ser Val Leu Gly Ile Arg
225      230      235      240
Ser Lys Ile Gly Glu Asn Ser Val Val Asp Gln Ser Ile Ile Met Gly
      245      250      255
Asn Ala Arg Tyr Gly Ser Pro Ser Met Pro Ser Leu Gly Ile Gly Lys
      260      265      270
Asp Cys Glu Ile Arg Lys Ala Ile Ile Asp Glu Asn Cys Cys Ile Gly
      275      280      285
Asn Gly Val Lys Leu Gln Asn Leu Lys Gly Tyr Ile Lys Tyr Asp Ser
290      295      300
Pro Asp Lys Lys Leu Phe Val Arg Asp Asn Ile Ile Ile Val Pro Gln
305      310      315      320
Gly Thr His Ile Pro Asp Asn Tyr Ile Phe
      325      330

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&lt;210&gt;648

&lt;211&gt;225

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;648

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Val Ser Phe Leu Tyr Phe Val Lys Asn Gly Arg Arg Leu Trp Arg Met
  1      5      10      15
Met Asn Tyr Glu Asp Ala Lys Leu Arg Gly Gln Ala Val Ala Ile Leu
      20      25      30
Tyr Gln Ile Gly Ala Ile Lys Phe Gly Lys His Ile Leu Ala Ser Gly
      35      40      45
Glu Glu Thr Pro Leu Tyr Val Asp Met Arg Leu Val Ile Ser Ser Pro
      50      55      60
Glu Val Leu Gln Thr Val Ala Thr Leu Ile Trp Arg Leu Arg Pro Ser
      65      70      75      80
Phe Asn Ser Ser Leu Leu Cys Gly Val Pro Tyr Thr Ala Leu Thr Leu
      85      90      95
Ala Thr Ser Ile Ser Leu Lys Tyr Asn Ile Pro Met Val Leu Arg Arg
      100      105      110
Lys Glu Leu Gln Asn Val Asp Pro Ser Asp Ala Ile Lys Val Glu Gly
      115      120      125
Leu Phe Thr Pro Gly Gln Thr Cys Leu Val Ile Asn Asp Met Val Ser
      130      135      140
Ser Gly Lys Ser Ile Ile Glu Thr Ala Val Ala Leu Glu Glu Asn Gly
      145      150      155      160
Leu Val Val Arg Glu Ala Leu Val Phe Leu Asp Arg Arg Lys Glu Ala
      165      170      175
Cys Gln Pro Leu Gly Pro Gln Gly Ile Lys Val Ser Ser Val Phe Thr
      180      185      190
Val Pro Thr Leu Ile Lys Ala Leu Ile Ala Tyr Gly Lys Leu Ser Ser
      195      200      205
Gly Asp Leu Thr Leu Ala Asn Lys Ile Ser Glu Ile Leu Glu Ile Glu
      210      215      220

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Ser

225

&lt;210&gt;649

&lt;211&gt;464

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;649

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Met Lys Glu Glu Arg Ser Ser Glu Ile Leu Pro Arg Val Lys Glu Thr
  1      5      10      15
Lys Lys His Ala Tyr Val Ser Met Gln Glu Lys Ser Cys Val Gly Glu

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20 25 30  
 Cys Ala Val Val Ala Ser Glu Ser Glu Glu Ala Glu Ser Val Thr Val  
 35 40 45  
 Thr Lys Ile Ala Lys Leu Gln Arg Met Gly Ile Glu Glu Leu Asn Ile  
 50 55 60  
 Leu Ala Arg Gln Tyr Gly Val Lys Asn Ile Gly Ser Leu Thr Lys Ser  
 65 70 75 80  
 Gln Val Val Phe Glu Ile Val Lys Ala Lys Ser Glu Arg Pro Asp Glu  
 85 90 95  
 Leu Leu Ile Gly Glu Gly Val Leu Glu Val Leu Pro Asp Gly Phe Gly  
 100 105 110  
 Phe Leu Arg Ser Pro Thr Tyr Asn Tyr Leu Pro Ser Ala Glu Asp Ile  
 115 120 125  
 Tyr Val Ser Pro Ala Gln Ile Arg Arg Phe Asp Leu Lys Lys Gly Asp  
 130 135 140  
 Thr Ile Ile Gly Thr Ile Arg Ser Pro Lys Glu Lys Glu Lys Tyr Phe  
 145 150 155 160  
 Ala Leu Leu Lys Val Asp Lys Ile Asn Gly Ser Thr Pro Asp Lys Ala  
 165 170 175  
 Lys Glu Arg Val Leu Phe Glu Asn Leu Thr Pro Leu Tyr Pro Asn Gln  
 180 185 190  
 Arg Ile Val Met Glu Met Gly Lys Asp His Leu Ala Glu Arg Val Leu  
 195 200 205  
 Asp Leu Thr Ala Pro Ile Gly Lys Gly Gln Arg Gly Leu Ile Val Ala  
 210 215 220  
 Pro Pro Arg Ser Gly Lys Thr Val Ile Leu Gln Ser Ile Ala His Ala  
 225 230 235 240  
 Ile Ala Val Asn Asn Pro Asp Ile Val Leu Ile Val Leu Leu Ile Asp  
 245 250 255  
 Glu Arg Pro Glu Glu Val Thr Asp Met Ile Arg Gln Val Arg Gly Glu  
 260 265 270  
 Val Val Ala Ser Thr Phe Asp Glu Gln Pro Glu Arg His Ile Gln Val  
 275 280 285  
 Ala Glu Met Val Ile Glu Lys Ala Arg Arg Leu Val Glu His Gly Asn  
 290 295 300  
 Asp Val Val Ile Leu Leu Asp Ser Ile Thr Arg Leu Ala Arg Ala Tyr  
 305 310 315 320  
 Asn Thr Val Gln Pro His Ser Gly Lys Ile Leu Thr Gly Gly Val Asp  
 325 330 335  
 Ala Ser Ala Leu His Lys Pro Lys Arg Phe Phe Gly Ala Ala Arg Asn  
 340 345 350  
 Ile Glu Gly Gly Gly Ser Leu Thr Ile Leu Ala Thr Ala Leu Ile Asp  
 355 360 365  
 Thr Gly Ser Arg Met Asp Glu Val Ile Phe Glu Glu Phe Lys Gly Thr  
 370 375 380  
 Gly Asn Met Glu Leu Val Leu Asp Arg Arg Leu Ser Asp Arg Arg Thr  
 385 390 395 400  
 Tyr Pro Ala Ile Asp Leu Ile Lys Ser Gly Thr Arg Lys Glu Glu Leu  
 405 410 415  
 Leu Tyr His Pro Ser Glu Leu Glu Arg Val Tyr Leu Phe Arg Gln Ala  
 420 425 430  
 Ile Ala Asp Leu Thr Thr Ile Asp Ala Met His Leu Leu Leu Gly Arg  
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 Leu Lys Lys Thr Asn Ser Asn Ala Glu Phe Leu Leu Ser Leu Lys Glu  
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 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>650  
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 1 5 10 15  
 Ser Tyr Asp Phe Ile Arg Ser Tyr Ser Cys Glu Tyr Leu Asn Trp Lys  
 20 25 30

Lys Leu Gly Arg Met Leu Lys Leu Leu Lys Val Ser Ile Thr Gly Asp  
 35 40 45  
 Leu Ser Ser Gly Lys Thr Glu Ala Cys Gln Val Phe Gln Glu Leu Gly  
 50 55 60  
 Ala Tyr Val Val Ser Ala Asp Glu Ile Ser His Ser Phe Leu Ile Pro  
 65 70 75 80  
 His Thr Arg Ile Gly Arg Arg Val Ile Asp Leu Leu Gly Ser Asp Val  
 85 90 95  
 Val Val Asp Gly Ala Phe Asp Ala Gln Ala Ile Ala Ala Lys Val Phe  
 100 105 110  
 Tyr Asn Ser Val Leu Leu Gln Gly Leu Glu Ala Ile Leu His Pro Glu  
 115 120 125  
 Val Cys Arg Ile Ile Glu Glu Gln Tyr His Gln Ser Ile Gln Asp Gly  
 130 135 140  
 Asn Tyr Pro Phe Phe Val Ala Glu Val Pro Leu Leu Tyr Glu Ile His  
 145 150 155 160  
 Tyr Ala Lys Trp Phe Asp Ser Val Ile Leu Val Met Ala Asn Glu Asp  
 165 170 175  
 Ile Arg Arg Glu Arg Phe Met Lys Lys Thr Gly Arg Ser Ser Glu Asp  
 180 185 190  
 Phe Asp Gln Arg Cys Ser Arg Phe Leu Asn Val Glu Glu Lys Leu Ala  
 195 200 205  
 Gln Ala Asp Val Val Val Glu Asn Asn Gly Thr Lys Lys Glu Leu His  
 210 215 220  
 Gln Lys Ile Glu Glu Tyr Phe Tyr Ala Leu Lys Gly Ala Leu  
 225 230 235

&lt;210&gt;651

&lt;211&gt;870

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;651

Met Lys Lys Leu Phe Val Leu Asp Ala Ser Gly Phe Ile Phe Arg Ala  
 1 5 10 15  
 Tyr Phe Ala Leu Pro Glu Met Lys Asn His Gln Gly Gln Ala Thr Gln  
 20 25 30  
 Ala Val Phe Gly Phe Ile Arg Ser Leu Asn Lys Leu Ile Lys Glu Phe  
 35 40 45  
 Ser Pro Glu Tyr Met Ile Ser Val Phe Asp Gly Pro Asn Asn Lys Gln  
 50 55 60  
 Ser Arg Gln Ala Ile Tyr Ala Asp Tyr Lys Ser Asn Arg Gln Lys Lys  
 65 70 75 80  
 Phe Glu Asp Ile Pro Pro Gln Ile Ala Leu Val Lys Glu Tyr Cys Ser  
 85 90 95  
 Leu Ile Gly Leu Ala Tyr Leu Glu Lys Glu Ser Val Glu Ala Asp Asp  
 100 105 110  
 Val Ile Ala Ser Ile Ala Lys Lys Ala Arg Glu Glu Asn Tyr Lys Val  
 115 120 125  
 Tyr Val Cys Thr Ala Asp Lys Asp Leu Leu Gln Leu Val Asn Asp His  
 130 135 140  
 Val Val Ala Trp Asn Pro Trp Ala Asp Gln Gly Val Val Gly Ile Ser  
 145 150 155 160  
 Glu Val Ile Glu Arg Tyr Gly Ile Pro Pro Gly Asn Ile Pro Asp Tyr  
 165 170 175  
 Leu Ala Leu Val Gly Asp Ser Ser Asp Asn Ile Pro Gly Leu Pro Gly  
 180 185 190  
 Cys Gly Pro Lys Lys Ala Ala Ala Leu Leu Lys Gln Phe Gly Ser Val  
 195 200 205  
 Glu Gly Leu Leu Glu Asn Leu Asp Ala Val Lys Gly Leu Ser Gln Thr  
 210 215 220  
 Met Leu Ser Glu Arg Gln Glu Thr Leu Lys Leu Ser Lys Arg Leu Ala  
 225 230 235 240  
 Leu Leu Asp Ser Asn Ile Pro Ile Pro Val Pro Ile Glu Ser Leu Thr  
 245 250 255  
 Phe Pro Gln His Pro Val Asp Glu Glu Lys Leu Ile His Phe Tyr Ile

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     |     | 270 |     |  |  |
| Gln | Gln | Gly | Phe | Lys | Thr | Leu | Val | Pro | Ser | Lys | Gln | Thr | Glu | Ala | Ala |  |  |
|     |     | 275 |     |     |     |     |     | 280 |     |     |     |     | 285 |     |     |  |  |
| Thr | Val | Asp | Val | Gln | Ile | Ile | Lys | Asp | Ala | Glu | Ser | Leu | Thr | Asn | Ile |  |  |
|     |     | 290 |     |     |     |     |     | 295 |     |     |     |     | 300 |     |     |  |  |
| Leu | Asn | Leu | Val | Gln | Gly | Gly | Asp | Ile | Ala | Phe | Ala | Val | Ala | Tyr | Thr |  |  |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |  |  |
| Gly | Asn | His | Leu | Leu | Ser | Leu | Lys | Leu | Glu | Gly | Leu | Ala | Leu | Thr | Gln |  |  |
|     |     |     |     | 325 |     |     |     |     |     | 330 |     |     |     |     | 335 |  |  |
| Gly | Ser | Gly | Val | Phe | Phe | Ile | Ala | Leu | Glu | Glu | Glu | Gly | Thr | Lys | Ile |  |  |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |  |  |
| Leu | Pro | Ile | Leu | Lys | Asp | Phe | Phe | Leu | Arg | Glu | Asp | Leu | Thr | Phe | Tyr |  |  |
|     |     | 355 |     |     |     |     |     | 360 |     |     |     | 365 |     |     |     |  |  |
| Gly | Tyr | Asn | Leu | Lys | Arg | Asp | Cys | His | Ala | Leu | Leu | Asn | Ala | Gly | Ile |  |  |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |  |  |
| Val | Ile | Arg | Glu | Ile | Ser | Tyr | Asp | Leu | Ala | Leu | Ala | Glu | His | Leu | Thr |  |  |
| 385 |     |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     | 400 |  |  |
| Asn | Gly | Gly | Gly | Lys | Ile | Ser | Phe | Gln | Ser | Leu | Leu | Val | Asn | His | Gly |  |  |
|     |     |     |     | 405 |     |     |     | 410 |     |     |     |     |     | 415 |     |  |  |
| Phe | Thr | Glu | Thr | Ala | His | Arg | Phe | Ala | Lys | Glu | Trp | Gly | Asn | Ser | Gly |  |  |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |  |  |
| Leu | Pro | Ile | Gly | Arg | Leu | Pro | Glu | Gln | Pro | Glu | Gln | Tyr | Phe | Gly | Glu |  |  |
|     | 435 |     |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |  |  |
| Phe | Val | Ala | Tyr | Leu | Pro | Ile | Ile | Lys | Asp | Ala | Ile | Leu | Glu | Glu | Ile |  |  |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |  |  |
| Asn | Arg | Lys | Asn | Leu | Asn | His | Ile | Leu | Ser | Asp | Ile | Glu | Met | Pro | Leu |  |  |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     | 480 |     |  |  |
| Glu | Lys | Val | Leu | Phe | Ser | Met | Glu | Arg | Ala | Gly | Val | Pro | Leu | Asp | Val |  |  |
|     |     |     |     | 485 |     |     |     | 490 |     |     |     |     |     | 495 |     |  |  |
| Glu | Glu | Leu | Ala | Ile | Leu | Glu | Ala | Leu | Phe | Glu | Thr | Glu | Leu | Ala | Val |  |  |
|     |     | 500 |     |     |     |     |     | 505 |     |     |     |     | 510 |     |     |  |  |
| Leu | Thr | Glu | Glu | Ile | Tyr | Asp | Leu | Ser | Gly | Arg | Pro | Phe | Asn | Ile | Lys |  |  |
|     | 515 |     |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |  |  |
| Ser | Pro | Lys | Gln | Leu | Ser | Asp | Ile | Leu | Tyr | Asn | Glu | Leu | Gly | Leu | Arg |  |  |
|     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |  |  |
| Pro | Ile | Asp | Lys | Ala | Lys | Ser | Thr | Arg | Ala | Glu | Val | Leu | Glu | Ala | Leu |  |  |
| 545 |     |     |     |     | 550 |     |     |     |     | 555 |     |     |     | 560 |     |  |  |
| Arg | Ser | Glu | His | Pro | Ile | Ile | Glu | Lys | Leu | Ala | Phe | Arg | Thr | Ile |     |  |  |
|     |     |     |     | 565 |     |     |     | 570 |     |     |     |     |     | 575 |     |  |  |
| Glu | Lys | Leu | Leu | Ser | Thr | Tyr | Val | Lys | Ala | Leu | Pro | Lys | Gln | Val | Asp |  |  |
|     |     | 580 |     |     |     |     |     | 585 |     |     |     |     | 590 |     |     |  |  |
| Ser | His | Thr | Gln | Arg | Ile | His | Pro | Ser | Phe | Asp | Gln | Thr | Gly | Ala | Val |  |  |
|     | 595 |     |     |     |     |     | 600 |     |     |     |     | 605 |     |     |     |  |  |
| Thr | Gly | Arg | Leu | Ala | Cys | Arg | Asp | Pro | Asn | Leu | Gln | Asn | Ile | Pro | Ile |  |  |
|     | 610 |     |     |     |     | 615 |     |     |     |     | 620 |     |     |     |     |  |  |
| Arg | Ser | Glu | Arg | Gly | Ile | Leu | Leu | Arg | Lys | Ala | Phe | Arg | Leu | Ser | Glu |  |  |
| 625 |     |     |     |     | 630 |     |     |     |     | 635 |     |     |     | 640 |     |  |  |
| Lys | Asn | Ser | Tyr | Phe | Leu | Ser | Ala | Asp | Tyr | Ser | Gln | Ile | Glu | Leu | Arg |  |  |
|     |     |     |     | 645 |     |     |     | 650 |     |     |     |     | 655 |     |     |  |  |
| Phe | Leu | Ala | His | Leu | Ser | Gln | Asp | Lys | Ser | Leu | Lys | Phe | Ala | Phe | Glu |  |  |
|     |     | 660 |     |     |     |     |     | 665 |     |     |     | 670 |     |     |     |  |  |
| Ser | Gly | Glu | Asp | Ile | His | Ala | Phe | Thr | Ala | Ser | Gln | Val | Phe | His | Val |  |  |
|     | 675 |     |     |     |     |     | 680 |     |     |     |     | 685 |     |     |     |  |  |
| Pro | Leu | Glu | Gln | Val | Ser | Lys | Glu | Gln | Arg | Met | Gln | Ala | Lys | Thr | Val |  |  |
|     | 690 |     |     |     |     | 695 |     |     |     |     | 700 |     |     |     |     |  |  |
| Asn | Phe | Gly | Ile | Val | Tyr | Gly | Gln | Gln | Ala | Phe | Gly | Leu | Ala | Lys | Val |  |  |
| 705 |     |     |     |     | 710 |     |     |     |     | 715 |     |     |     | 720 |     |  |  |
| Leu | Lys | Ile | Ser | Ile | Gly | Glu | Val | Gln | Glu | Leu | Ile | Gln | Ala | Tyr | Phe |  |  |
|     |     |     |     | 725 |     |     |     | 730 |     |     |     |     | 735 |     |     |  |  |
| Ser | Arg | Tyr | Pro | Glu | Ile | Ala | His | Phe | Val | Glu | Glu | Thr | Ile | Gln | Gln |  |  |
|     | 740 |     |     |     |     |     |     | 745 |     |     |     | 750 |     |     |     |  |  |
| Ala | Ala | Lys | Asp | Leu | Arg | Val | Thr | Met | Leu | Gly | Arg | Glu | Arg | Ile |     |  |  |
|     | 755 |     |     |     |     |     | 760 |     |     |     |     | 765 |     |     |     |  |  |
| Ile | Asp | Ser | Trp | Asn | Glu | Phe | Pro | Gly | Ser | Arg | Ala | Ser | Gly | Arg |     |  |  |

770 775 780  
 Phe Ala Val Asn Thr Arg Ile Gln Gly Ser Ala Ala Glu Leu Ile Lys  
 785 790 795 800  
 Leu Ala Met Leu Asp Ile Ser Gln Ala Ile Lys Gln Gln Gln Met Lys  
 805 810 815  
 Ser Arg Met Leu Leu Gln Ile His Asp Glu Leu Leu Phe Glu Val Pro  
 820 825 830  
 Glu Glu Glu Ile Glu Glu Met Gln Arg Leu Val Arg Glu Lys Met Glu  
 835 840 845  
 Ser Ala Met Thr Leu Ser Val Pro Ile Val Val Asn Ile Leu Ile Gly  
 850 855 860  
 Lys Asn Trp Ala Glu Cys  
 865 870

&lt;210&gt;652

&lt;211&gt;333

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;652

Met Lys Thr Leu Trp His Phe Val Ser Lys Ala Phe Leu Ser Ile Val  
 1 5 10 15  
 Gly Leu Cys Cys Gly Val Val Leu Ala Phe Val Val Ile Phe Ala Leu  
 20 25 30  
 Ile Ala Ser Ser Leu Gly Asn Gly Asp Ala Thr Phe Val Ser Leu Pro  
 35 40 45  
 Asp Ala Gln Gly Glu Val Lys Asp Leu Gly Lys Thr Ala Pro Ile Ile  
 50 55 60  
 Ala Val Ile Glu Met Lys Asp Val Ile Ala Ser Ser Lys Asn Thr Ala  
 65 70 75 80  
 Lys Thr Ile Gln Asn Ile Leu Glu Gly Phe Glu Lys Ala Pro Leu Lys  
 85 90 95  
 Asp Arg Val Lys Gly Ile Val Ile Asp Met Asp Cys Pro Gly Gly Glu  
 100 105 110  
 Val Phe Glu Ile Asp Arg Ile Tyr Ser Met Leu Arg Phe Trp Lys Glu  
 115 120 125  
 Arg Lys Gly Phe Pro Ile Tyr Ile Tyr Val Asn Gly Leu Cys Ala Ser  
 130 135 140  
 Gly Gly Tyr Tyr Val Ser Cys Ala Ala Thr Lys Ile Tyr Ala Thr Ser  
 145 150 155 160  
 Ser Ser Leu Ile Gly Ser Ile Gly Val Arg Ser Gly Pro Phe Phe Asn  
 165 170 175  
 Val Lys Glu Gly Leu Asn Arg Tyr Gly Val Glu Ser Asp Leu Leu Thr  
 180 185 190  
 Ala Gly Lys Asp Lys Ala Pro Met Asn Pro Tyr Thr Pro Trp Thr Ser  
 195 200 205  
 His Asp Arg Glu Glu Arg Gln Ala Thr Leu Asp Phe Leu Tyr Gly Gln  
 210 215 220  
 Phe Val Asp Ile Val Thr Gln Asn Arg Pro Leu Leu Thr Lys Glu Lys  
 225 230 235 240  
 Leu Val His Thr Leu Gly Ala Arg Ile Phe Ser Pro Glu Lys Ala Lys  
 245 250 255  
 Gln Glu Gly Tyr Ile Asp Val Val Gly Ala Thr Lys Glu Gln Val Leu  
 260 265 270  
 Gln Asp Ile Val Ala Val Cys Lys Ile Glu Asp Asn Tyr Arg Val Ile  
 275 280 285  
 Gly Ser Gly Gly Asp Gly Trp Trp Lys Arg Val Ala Ser Ala Ala Ala  
 290 295 300  
 Ser Ser Pro Leu Val Thr Gly Met Ile Lys His Asp Ile Leu Pro Leu  
 305 310 315 320  
 Ser His Asp Ala Ala Tyr Ile Pro Pro Tyr Leu Ala Leu  
 325 330

&lt;210&gt;653

&lt;211&gt;551

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;653

Val Phe Ile Arg His Lys Val Gly Lys Glu Phe Met Gln Ser Ser Glu  
 1 5 10 15  
 Val Lys Pro Phe Ser Arg Leu Arg Ala Tyr Leu Cys Pro Ile Tyr Lys  
 20 25 30  
 Ser Glu Phe Ser Lys Phe Val Pro Leu Phe Leu Leu Ala Phe Phe Val  
 35 40 45  
 Gly Phe Asn Tyr Cys Leu Leu Lys Asn Met Lys Asp Thr Leu Val Ile  
 50 55 60  
 Val Gly Ser Asp Ala Gly Ala Glu Val Ile Pro Phe Leu Lys Val Trp  
 65 70 75 80  
 Gly Ile Val Pro Gly Ala Val Ile Val Thr Met Val Tyr Gly Trp Leu  
 85 90 95  
 Gly Ser Arg Tyr Pro Arg Asp Thr Val Phe Tyr Cys Phe Met Ala Ala  
 100 105 110  
 Phe Leu Gly Phe Phe Phe Leu Phe Ala Val Ile Ile Tyr Pro Val Gly  
 115 120 125  
 Asp Ser Leu His Leu Asn Ser Leu Ala Asp Lys Leu Gln Glu Leu Leu  
 130 135 140  
 Pro Gln Gly Leu Arg Gly Phe Ile Val Met Val Arg Tyr Trp Ser Tyr  
 145 150 155 160  
 Ser Ile Tyr Tyr Val Met Ser Glu Leu Trp Ser Ser Val Val Leu Ser  
 165 170 175  
 Met Leu Phe Trp Gly Leu Ala Asn Gln Ile Thr Thr Ile Thr Glu Ala  
 180 185 190  
 Gly Arg Phe Tyr Ala Leu Ile Asn Thr Gly Leu Asn Leu Ser Ser Ile  
 195 200 205  
 Cys Ala Gly Glu Ile Ser Tyr Trp Met Gly Lys Gln Thr Phe Val Ala  
 210 215 220  
 Tyr Ser Phe Ala Cys Asp Ser Trp His Ser Val Met Leu Asn Leu Thr  
 225 230 235 240  
 Met Leu Ile Thr Cys Ser Gly Leu Ile Met Ile Trp Leu Tyr Arg Arg  
 245 250 255  
 Ile His His Leu Thr Ile Asp Thr Ser Ile Pro Pro Ser Arg Arg Val  
 260 265 270  
 Leu Ala Glu Glu Gly Ala Ala Thr Ala Asn Leu Lys Glu Lys Lys Lys  
 275 280 285  
 Pro Lys Ala Lys Ala Arg Asn Leu Phe Leu His Leu Ile Gln Ser Arg  
 290 295 300  
 Tyr Leu Leu Gly Leu Ala Ile Ile Val Leu Ser Tyr Asn Leu Val Ile  
 305 310 315 320  
 His Leu Phe Glu Val Val Trp Lys Asp Gln Val Ser Gln Ile Tyr Ser  
 325 330 335  
 Ser His Val Glu Phe Asn Gly Tyr Met Ser Arg Ile Thr Thr Leu Ile  
 340 345 350  
 Gly Val Val Ser Val Leu Ala Ala Val Leu Leu Thr Gly Gln Cys Ile  
 355 360 365  
 Arg Lys Trp Gly Trp Thr Val Gly Ala Leu Val Thr Pro Leu Val Met  
 370 375 380  
 Leu Val Ser Gly Leu Leu Phe Phe Gly Thr Ile Phe Ala Ala Lys Arg  
 385 390 395 400  
 Asp Ile Ser Ile Phe Gly Gly Val Leu Gly Met Thr Pro Leu Ala Leu  
 405 410 415  
 Ala Ala Trp Thr Gly Gly Met Gln Asn Val Leu Ser Arg Gly Thr Lys  
 420 425 430  
 Phe Thr Phe Phe Asp Gln Thr Lys Glu Met Ala Phe Ile Pro Leu Ser  
 435 440 445  
 Pro Glu Asp Lys Asn His Gly Lys Ala Ala Ile Asp Gly Val Val Ser  
 450 455 460  
 Arg Ile Gly Lys Ser Gly Gly Ser Leu Ile Tyr Gln Gly Leu Leu Val  
 465 470 475 480  
 Ile Phe Ser Ser Val Ala Ala Ser Leu Asn Val Ile Ala Leu Val Leu  
 485 490 495  
 Leu Ile Ile Met Val Val Trp Ile Ala Val Val Ala Tyr Ile Gly Lys



500 505 510  
 Glu Tyr Tyr Ser Arg Ala Ala Asp Ala Val Ala Thr Leu Lys Gln Pro  
 515 520 525  
 Lys Glu Pro Ser Ser Ser Ile Val Arg Glu Ala Gln Glu Ser Val Glu  
 530 535 540  
 Gln Glu Glu Met Ala Val Leu  
 545 550  
 <210>654  
 <211>377  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>654  
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 Val Asp Ile Ile Arg Ser Lys Ser Ile Leu Arg Lys Met Ile Ser Thr  
 20 25 30  
 Ala Lys Glu Ile Glu Lys Arg Ala Leu Glu Gln Pro Lys Asn Val Ala  
 35 40 45  
 Glu Ala Leu Asp Glu Ala Gln Asn Ser Phe Phe Lys Ile Ser Gln Ser  
 50 55 60  
 Thr Ser Val Ser Gln Tyr Thr Leu Val Ala Asp Lys Leu Arg Gly Leu  
 65 70 75 80  
 Thr Thr Thr Thr Asp Lys Pro Tyr Leu Val Gln Leu Gln Glu Arg Gln  
 85 90 95  
 Glu Leu Phe Leu Gln Asn Ala Gln Gly Asp Asn Lys Ser Phe Phe Thr  
 100 105 110  
 Gly Ile Pro Thr His Phe Ile Asp Leu Asp Gln Leu Ile His Gly Phe  
 115 120 125  
 Ser Pro Ser Asn Leu Met Ile Leu Ala Ala Arg Pro Ala Met Gly Lys  
 130 135 140  
 Thr Ala Leu Ala Leu Asn Ile Ala Glu Asn Leu Cys Phe Gln Asn Arg  
 145 150 155 160  
 Leu Pro Ile Gly Ile Phe Ser Leu Glu Met Thr Val Asp Gln Leu Ile  
 165 170 175  
 His Arg Met Ile Cys Ser Arg Ser Glu Val Asp Ser Lys Lys Ile Ser  
 180 185 190  
 Ile Gly Asp Leu Ser Gly His Asp Phe Gln Arg Ile Val Ser Val Ile  
 195 200 205  
 Asn Glu Met Gln Glu His Thr Leu Leu Ile Asp Asp Gln Pro Gly Leu  
 210 215 220  
 Lys Val Ser Asp Leu Arg Ala Arg Ala Arg Arg Met Lys Glu Ser Tyr  
 225 230 235 240  
 Asp Ile Gln Phe Leu Ile Ile Asp Tyr Leu Gln Leu Leu Ser Gly Ser  
 245 250 255  
 Gly Thr Leu Arg Ala Thr Glu Ser Arg Gln Thr Glu Ile Ser Glu Ile  
 260 265 270  
 Ser Arg Met Leu Lys Thr Leu Ala Arg Glu Leu Asn Ile Pro Ile Leu  
 275 280 285  
 Cys Leu Ser Gln Leu Ser Arg Lys Val Glu Asp Arg Ala Asn His Arg  
 290 295 300  
 Pro Met Met Ser Asp Leu Arg Glu Ser Gly Ser Ile Glu Gln Asp Ser  
 305 310 315 320  
 Asp Leu Val Met Phe Leu Leu Arg Arg Glu Tyr Tyr Asp Pro Asn Asp  
 325 330 335  
 Lys Pro Gly Thr Ala Glu Leu Ile Ile Ala Lys Asn Arg His Gly Ser  
 340 345 350  
 Ile Gly Ser Val Pro Leu Val Phe Glu Lys Glu Leu Ala Arg Phe Arg  
 355 360 365  
 Asn Tyr Ser Ala Phe Glu Cys Ile Ser  
 370 375  
 <210>655  
 <211>611  
 <212>PRT  
 <213>Chlamydia pneumoniae

&lt;400&gt;655

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Met Trp Thr His Pro Ile Ala Tyr Asp Val Ile Val Val Gly Ala Gly
 1           5           10           15
His Ala Gly Cys Glu Ala Ala Tyr Cys Ser Ala Lys Met Gly Val Ser
           20           25           30
Val Leu Met Leu Thr Ser Asn Leu Asp Thr Ile Ala Lys Leu Ser Cys
           35           40           45
Asn Pro Ala Val Gly Gly Ile Gly Lys Gly His Ile Val Arg Glu Ile
           50           55           60
Asp Ala Leu Gly Gly Ile Met Ala Glu Val Thr Asp Gln Ser Gly Ile
           65           70           75           80
Gln Phe Arg Ile Leu Asn Gln Thr Lys Gly Pro Ala Val Arg Ala Pro
           85           90           95
Arg Ala Gln Val Asp Lys Gln Leu Tyr His Ile His Met Lys Arg Leu
           100          105          110
Leu Glu Asn Thr Pro Gly Leu His Ile Met Gln Ala Thr Val Glu Ser
           115          120          125
Leu Leu Asp Lys Glu Gly Val Ile Ser Gly Val Thr Thr Lys Glu Gly
           130          135          140
Trp Met Phe Ser Gly Lys Thr Val Val Leu Ser Ser Gly Thr Phe Met
           145          150          155          160
Arg Gly Leu Ile His Ile Gly Asp Arg Asn Phe Ser Gly Gly Arg Leu
           165          170          175
Gly Asp Pro Ser Ser Gln Gly Leu Ser Glu Asp Leu Lys Lys Arg Gly
           180          185          190
Phe Pro Ile Ser Arg Leu Lys Thr Gly Thr Pro Pro Arg Leu Leu Ala
           195          200          205
Ser Ser Ile Asn Phe Ser Cys Met Glu Glu Gln Pro Gly Asp Leu Gly
           210          215          220
Val Gly Phe Val His Arg Thr Glu Pro Phe Gln Pro Pro Leu Pro Gln
           225          230          235          240
Leu Ser Cys Phe Ile Thr His Thr Met Glu Lys Thr Lys Ala Ile Ile
           245          250          255
Ser Ala Asn Leu His Arg Ser Ala Leu Tyr Gly Gly Cys Ile Glu Gly
           260          265          270
Val Gly Pro Arg Tyr Cys Pro Ser Ile Glu Asp Lys Ile Val Lys Phe
           275          280          285
Ser Asp Lys Glu Arg His His Val Phe Leu Glu Pro Glu Gly Leu His
           290          295          300
Thr Gln Glu Ile Tyr Ala Asn Gly Leu Ser Thr Ser Met Pro Phe Asp
           305          310          315          320
Val Gln Tyr Asp Met Ile Arg Ser Val Leu Gly Leu Glu Asn Ala Ile
           325          330          335
Ile Thr Arg Pro Ala Tyr Ala Ile Glu Tyr Asp Tyr Ile His Gly Asn
           340          345          350
Val Ile His Pro Thr Leu Glu Ser Lys Leu Ile Glu Gly Leu Phe Leu
           355          360          365
Cys Gly Gln Ile Asn Gly Thr Gly Tyr Glu Glu Ala Ala Ala Gln
           370          375          380
Gly Leu Ile Ala Gly Ile Asn Ala Val Asn Lys Val Phe Asn Arg Pro
           385          390          395          400
Pro Phe Ile Pro Ser Arg Gln Glu Ser Tyr Ile Gly Val Met Leu Asp
           405          410          415
Asp Leu Thr Thr Gln Ile Leu Asp Glu Pro Tyr Arg Met Phe Thr Gly
           420          425          430
Arg Ala Glu His Arg Leu Leu Leu Arg Gln Asp Asn Ala Cys Ala Arg
           435          440          445
Leu Ser His Tyr Gly Tyr Glu Leu Gly Leu Leu Ser Glu Glu Arg Tyr
           450          455          460
Glu Leu Val Lys Lys Gln Asn Gln Leu Leu Glu Glu Glu Lys Val Arg
           465          470          475          480
Leu Gln Lys Thr Phe Arg Gln Tyr Gly Gln Ser Val Val Ser Leu Ala
           485          490          495
Lys Ala Leu Ser Arg Pro Glu Val Ser Tyr Asp Met Leu Arg Glu Ala

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500 505 510  
 Phe Pro Asn Asp Ile Arg Asp Leu Gly Ala Val Leu Asn Ala Ser Leu  
 515 520 525  
 Glu Met Glu Ile Lys Tyr Ser Gly Tyr Ile Asp Arg Gln Lys Ile Leu  
 530 535 540  
 Ile Gln Ser Leu Glu Lys Ala Glu Ser Leu Leu Ile Pro Glu Asp Leu  
 545 550 555 560  
 Asp Tyr Lys Gln Ile Thr Ala Leu Ser Leu Glu Ala Gln Glu Lys Leu  
 565 570 575  
 Ala Lys Phe Thr Pro Arg Thr Leu Gly Ser Ala Ser Arg Ile Ser Gly  
 580 585 590  
 Ile Ala Ser Ala Asp Ile Gln Val Leu Met Ile Ala Leu Lys Lys His  
 595 600 605  
 Ala His His  
 610

&lt;210&gt;656

&lt;211&gt;217

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;656

Lys Asn Met Pro Thr Thr Asn Cys Ile Phe Leu Asp Leu Arg Gly His  
 1 5 10 15  
 Ser Ile Leu His Gln Leu Gln Ile Glu Glu Ala Leu Leu Arg Val Ala  
 20 25 30  
 Asn Gln Asn Phe Cys Ile Ile Asn Ser Gly Ala Lys Asp Ser Ile Val  
 35 40 45  
 Leu Gly Ile Ser Arg Asn Leu Asn Gln Asp Val His Ile Ser Arg Ala  
 50 55 60  
 Gln Ala Asp His Ile Pro Ile Ile Arg Arg Tyr Ser Gly Gly Gly Thr  
 65 70 75 80  
 Val Phe Ile Asp Ser Asn Thr Leu Met Val Ser Trp Ile Met Asn Ser  
 85 90 95  
 Ser Glu Ala Ser Ala Gln Pro Gln Glu Leu Leu Ala Trp Thr Tyr Gly  
 100 105 110  
 Ile Tyr Ser Pro Leu Leu Pro Asn Thr Phe Ser Ile Arg Glu Asn Asp  
 115 120 125  
 Tyr Val Leu Gly His Lys Lys Ile Gly Gly Asn Ala Gln Tyr Ile Gln  
 130 135 140  
 Arg His Arg Trp Val His His Thr Thr Phe Leu Trp Asp Ile Asp Leu  
 145 150 155 160  
 Asp Lys Leu Ser Tyr Tyr Leu Pro Ile Pro Gln Gln Gln Pro Thr Tyr  
 165 170 175  
 Arg Asn Gln Arg Ser His Glu Glu Phe Leu Thr Thr Leu Arg Pro Trp  
 180 185 190  
 Phe Pro Ser Arg Asp Asp Phe Leu Glu Arg Ile Lys Ala Ser Gly Ser  
 195 200 205  
 Leu Leu Phe Tyr Leu Gly Arg Ile Ser  
 210 215

&lt;210&gt;657

&lt;211&gt;144

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;657

Met Glu Gln Thr Leu Ser Ile Ile Lys Pro Asp Ser Val Ser Lys Ala  
 1 5 10 15  
 His Ile Gly Glu Ile Leu Ser Ile Phe Glu Gln Ser Gly Leu Arg Ile  
 20 25 30  
 Ala Ala Met Lys Met Met His Leu Ser Gln Thr Glu Ala Glu Gly Phe  
 35 40 45  
 Tyr Phe Val His Arg Glu Arg Pro Phe Phe Gln Glu Leu Val Asp Phe  
 50 55 60  
 Met Val Ser Gly Pro Val Val Val Leu Val Leu Glu Gly Ala Asn Ala  
 65 70 75 80  
 Val Ser Arg Asn Arg Glu Leu Met Gly Ala Thr Asn Pro Ala Glu Ala

85 90 95  
 Ala Ser Gly Thr Ile Arg Ala Lys Phe Gly Glu Ser Ile Gly Val Asn  
 100 105 110  
 Ala Val His Gly Ser Asp Thr Leu Glu Asn Ala Ala Val Glu Ile Ala  
 115 120 125  
 Tyr Phe Phe Ser Lys Ile Glu Val Val Asn Ala Ser Lys Pro Leu Val  
 130 135 140  
 <210>658  
 <211>207  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>658  
 Met Tyr Asp Tyr Ile Arg Gly Thr Leu Thr Tyr Val His Thr Gly Ala  
 1 5 10 15  
 Ile Val Ile Glu Cys Gln Gly Ile Gly Tyr His Ile Ala Ile Thr Glu  
 20 25 30  
 Arg Trp Ala Ile Glu Cys Ile Arg Ala Leu His Gln Asp Phe Leu Val  
 35 40 45  
 Phe Thr His Val Ile Phe Arg Glu Thr Glu His Leu Leu Tyr Gly Phe  
 50 55 60  
 His Ser Arg Glu Glu Arg Glu Cys Phe Arg Ile Leu Ile Ser Phe Ser  
 65 70 75 80  
 Gly Ile Gly Pro Lys Leu Ala Leu Ala Ile Leu Asn Ala Leu Pro Leu  
 85 90 95  
 Lys Val Leu Cys Ser Val Val Arg Ser Glu Asp Ile Arg Ala Leu Ala  
 100 105 110  
 Ser Val Ser Gly Ile Gly Lys Lys Thr Ala Glu Lys Leu Met Val Glu  
 115 120 125  
 Leu Lys Gln Lys Leu Pro Asp Leu Leu Pro Leu Asp Ser Arg Val Glu  
 130 135 140  
 Thr Ser Gln Thr His Thr Thr Ser Ser Cys Leu Glu Glu Gly Ile Gln  
 145 150 155 160  
 Ala Leu Ala Ala Leu Gly Tyr Ser Lys Ile Ala Ala Glu Arg Met Ile  
 165 170 175  
 Ala Glu Ala Ile Lys Asp Leu Pro Glu Gly Ser Ser Leu Thr Asp Ile  
 180 185 190  
 Leu Pro Ile Ala Leu Lys Lys Asn Phe Ser Gly Val Asn Lys Asp  
 195 200 205  
 <210>659  
 <211>168  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>659  
 Val Ser Glu Leu Ile Ile Gly Val Asp Pro Gly Thr Ile Val Ala Gly  
 1 5 10 15  
 Tyr Ala Ile Ile Ala Val Glu Gln Arg Tyr Gln Leu Arg Pro Tyr Ser  
 20 25 30  
 Tyr Gly Ala Ile Arg Leu Ser Ser Asp Met Pro Leu Pro Met Arg Tyr  
 35 40 45  
 Lys Thr Leu Phe Glu Gln Leu Ser Gly Val Leu Asp Asp Thr Gln Pro  
 50 55 60  
 Asn Ala Met Val Leu Glu Thr Gln Phe Val Asn Lys Asn Pro Gln Ser  
 65 70 75 80  
 Thr Met Lys Leu Ala Met Ala Arg Gly Ile Val Leu Leu Ala Ala Ala  
 85 90 95  
 Gln Arg Asp Ile Leu Ile Phe Glu Tyr Ala Pro Asn Val Ala Lys Lys  
 100 105 110  
 Ala Val Val Gly Lys Gly His Ala Ser Lys Arg Gln Val Gln Val Met  
 115 120 125  
 Val Ser Lys Ile Leu Asn Val Pro Glu Val Leu His Pro Ser Asn Glu  
 130 135 140  
 Asp Ile Ala Asp Ala Phe Ala Leu Ala Ile Cys His Thr His Val Ala  
 145 150 155 160  
 Arg Ser Pro Leu Cys Gly Val Arg

165

&lt;210&gt;660

&lt;211&gt;323

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;660

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Arg Tyr Ser Val Arg Leu Leu Ser Ile Leu Lys Leu His Leu Phe Ser
 1           5           10           15
Leu Arg Ser Ser Ser Ser Leu Ser Pro His Tyr Tyr His Ser Cys Ser
          20           25           30
Arg Ser Met Leu His Leu Leu Cys Arg Trp Lys Asp Ala Asp Ile Met
          35           40           45
Glu Trp Gln Gln Ile Cys Asn Ile Leu Ser Gly Val Cys Ser Arg Met
          50           55           60
Ser Gly Lys Leu Val Ser Leu Gln Lys Glu Thr Gln Asp Ser Cys His
          65           70           75           80
Gln Glu His Glu Arg Ile His Leu Gln Tyr Arg Glu Gln Leu Ser Ala
          85           90           95
Leu Glu Glu Glu Tyr Arg Arg Arg Glu Glu Ala Lys Asn Gln Asp Leu
          100          105          110
Glu Lys Leu Gln Gln Glu Asn Thr Trp Leu Gln Asn Arg Leu Ala Glu
          115          120          125
Lys Leu Gln Gln Ile Arg His Gln Ser Asp Ile Ile Asp Glu Ile Lys
          130          135          140
Lys Glu Leu Leu Gln Ser Val Gln Arg Thr Glu Ile Ser Glu Gly Arg
          145          150          155          160
Arg Leu Cys Tyr Glu His Lys Ile Lys Gln Leu Glu Glu Gln Leu Gln
          165          170          175
Arg Tyr Val Ser Gln His Gly Ala Pro Ser Ile Glu Ile Glu Glu Asp
          180          185          190
Lys Ser Ser Ala Ala Tyr Ala Glu Ile Asn Arg Leu Lys Lys Ser Leu
          195          200          205
Ile Asp Leu Gln Gln Glu Lys Asp Ile Tyr Ile Lys Thr Tyr His Ser
          210          215          220
Glu Ile Ala Lys Leu Arg Glu Lys Leu Gln Arg Gln Glu Gly Ala Gln
          225          230          235          240
Thr Ser Ser Glu Val Cys Ser Ile Glu Lys Leu Thr Glu Val Gln Thr
          245          250          255
Asp Leu Ala Glu Lys Lys Lys Ala Ile Ala Leu Leu Gln Asp Ile Val
          260          265          270
Glu Asp Gln Tyr Cys Gln Leu Arg Asp Leu His Lys Glu Lys Gly Met
          275          280          285
Ala Met Pro Ser Asn Thr Lys Leu Asp His Leu Lys Gly Leu Leu Gly
          290          295          300
Lys Glu Pro Glu Ser Glu Val Asp Val Val Phe Ser Glu Ser Lys Ser
          305          310          315          320
Leu Gly Ser

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&lt;210&gt;661

&lt;211&gt;282

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;661

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Lys Gly Tyr Asn Tyr Val Tyr Phe Thr Arg Asp Pro Val Ile Glu Thr
 1           5           10           15
Val Ile Thr Ser Arg Glu Gly Tyr Lys Leu Ser Val Arg Asn Thr Lys
          20           25           30
His Phe Ser Gln Asp Pro Phe Met Val Glu Ala Ile Glu Val Ile Ser
          35           40           45
Leu Gly Asn Ile Cys Phe Phe Arg Asn Cys Asp His Ser Lys Pro Phe
          50           55           60
Leu Val Pro Ala Gly Asp Tyr Glu Val Met Glu Val Arg Asp Thr Lys
          65           70           75           80
Ile Asn Leu Lys Ala Val Gly Leu Asp Arg Gly Val Lys Ile Ala Gly

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85 90 95  
 Gly Arg Glu Ala Leu Ile Lys Leu Thr Lys Ser Thr Pro Leu Pro Val  
 100 105 110  
 Ile Asp Glu Lys Pro Leu Ala Asp Ser Pro Glu Glu Gly Thr Glu Pro  
 115 120 125  
 Thr Ser Pro Ser Lys Lys Glu Lys Lys Glu Ala Arg Lys Asp Ser Phe  
 130 135 140  
 Lys Gly Glu Lys Trp Lys Glu Lys Lys Lys Leu Ser Arg Arg Arg Asn  
 145 150 155 160  
 His Lys Glu Ile Ala Glu Val Thr Gly Ala Ser Gln Glu Ile Leu Asp  
 165 170 175  
 Thr Val Lys Glu Glu Leu Trp Glu Glu Ser Gln Glu Asn Glu Ile Val  
 180 185 190  
 Glu Gln Lys Lys Phe Ser Leu Leu Pro Pro Pro Ala Lys Leu Ile Ser  
 195 200 205  
 Glu Val Ile Ser Gln Thr Val Val Asp Pro Val Val Thr Ser Ala Asp  
 210 215 220  
 Leu Asn Glu Ser Leu Gln Ala Leu Val Arg Glu Ser Ser Asp Leu Ile  
 225 230 235 240  
 Asn Ala Leu Leu Ser Ala Asp Asp Ala Ile His Phe Pro Glu Thr Glu  
 245 250 255  
 Glu Glu Pro Thr Ser Ala Ser Phe Glu Glu Ser Ser Ala Met Phe Phe  
 260 265 270  
 Pro Glu Thr Ser Ser Ala Thr Glu Glu  
 275 280

&lt;210&gt;662

&lt;211&gt;336

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;662

Ala Met Lys Val Val Ile Asn Gly Phe Gly Arg Ile Gly Arg Leu Val  
 1 5 10 15  
 Phe Arg Gln Ile Leu Lys Arg Asn Ser Ser Val Glu Val Leu Ala Ile  
 20 25 30  
 Asn Asp Leu Val Pro Gly Asp Ala Leu Thr Tyr Leu Phe Lys Phe Asp  
 35 40 45  
 Ser Thr His Gly Arg Phe Pro Glu Asp Val Arg Cys Glu Ala Asp His  
 50 55 60  
 Leu Ile Val Gly Lys Arg Lys Ile Gln Phe Leu Ser Glu Arg Asn Val  
 65 70 75 80  
 Gln Asn Leu Pro Trp Lys Asp Leu Gly Val Asp Leu Val Ile Glu Cys  
 85 90 95  
 Thr Gly Leu Phe Thr Lys Lys Glu Asp Ala Glu Lys His Ile Gln Ala  
 100 105 110  
 Gly Ala Lys Arg Val Leu Ile Ser Ala Pro Gly Lys Gly Asp Ile Pro  
 115 120 125  
 Thr Phe Val Met Gly Val Asn His Lys Thr Phe Asn Pro Glu Lys Asp  
 130 135 140  
 Phe Val Ile Ser Asn Ala Ser Cys Thr Thr Asn Cys Leu Ala Pro Ile  
 145 150 155 160  
 Ala Lys Val Leu Leu Asp Asn Phe Gly Ile Thr Glu Gly Leu Met Thr  
 165 170 175  
 Thr Val His Ala Ala Thr Ala Thr Gln Leu Val Val Asp Gly Pro Ser  
 180 185 190  
 Lys Lys Asp Trp Arg Gly Gly Arg Gly Cys Leu Gln Asn Ile Ile Pro  
 195 200 205  
 Ala Ser Thr Gly Ala Ala Lys Ala Val Thr Leu Cys Leu Pro Glu Leu  
 210 215 220  
 Lys Gly Lys Leu Thr Gly Met Ala Phe Arg Val Pro Ile Glu Asp Val  
 225 230 235 240  
 Ser Val Val Asp Leu Thr Val Arg Leu Asp Lys Ser Thr Thr Tyr Asp  
 245 250 255  
 Asp Ile Cys Lys Ala Met Lys Gln Ala Ser Glu Thr Asp Leu Lys Gly  
 260 265 270

Ile Leu Asp Tyr Thr Asp Glu Gln Val Val Ser Ser Asp Phe Ile Gly  
 275 280 285  
 Ser Glu Tyr Ser Ser Ile Phe Asp Ala Leu Ala Gly Ile Ala Leu Asn  
 290 295 300  
 Asp Arg Phe Phe Lys Leu Val Ala Trp Tyr Asp Asn Glu Thr Gly Tyr  
 305 310 315 320  
 Ala Thr Arg Ile Val Asp Leu Leu Glu Tyr Val Glu Lys Asn Ser Lys  
 325 330 335

&lt;210&gt;663

&lt;211&gt;129

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;663

Met Gln His Ala Arg Lys Lys Phe Arg Val Gly Arg Thr Ser Ser His  
 1 5 10 15  
 Asn Arg Cys Met Leu Ala Asn Met Leu Lys Ser Leu Ile His Tyr Glu  
 20 25 30  
 Arg Ile Glu Thr Thr Leu Pro Lys Ala Lys Glu Leu Arg Arg His Ala  
 35 40 45  
 Asp Lys Met Ile Thr Leu Ala Lys Lys Asn Ser Leu Ala Ala Arg Arg  
 50 55 60  
 Ile Ala Ile Gly Arg Leu Met Val Arg Tyr Asn Lys Leu Thr Ser Lys  
 65 70 75 80  
 Glu Ala Arg Gln Ala Lys Gly Gly Asp Thr Ser Val Tyr Asn Val Asp  
 85 90 95  
 Arg Leu Val Val Asn Lys Leu Phe Asp Glu Leu Gly Asn Arg Phe Val  
 100 105 110  
 Glu Arg Lys Gly Gly Tyr Thr Arg Ile Leu Lys Leu Gln Asn Arg Thr  
 115 120 125

Trp

&lt;210&gt;664

&lt;211&gt;337

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;664

Ala Ser Arg Lys Arg Asn Gly Pro His Phe Arg Lys Cys Ser Lys Thr  
 1 5 10 15  
 Cys Phe Ala Tyr Trp Phe Arg Ser Ser Arg Tyr Leu Ile Ser Phe Ala  
 20 25 30  
 Met Thr Gly Val Leu His Glu Tyr Met Ala Ile Glu Gly Val Ile Glu  
 35 40 45  
 Asp Val Thr Asn Ile Ile Leu Asn Leu Lys Gly Ala Leu Leu Lys Lys  
 50 55 60  
 Tyr Pro Met Gln Asp Ser Ser Leu Gly Arg Thr Thr Gln Val Leu Lys  
 65 70 75 80  
 Ala Ser Ile Ser Ile Asp Ala Ser Asp Leu Ala Ala Ala Asn Gly Gln  
 85 90 95  
 Lys Glu Val Thr Leu Gln Asp Leu Leu Gln Glu Gly Asp Phe Glu Ala  
 100 105 110  
 Val Asn Pro Asp Gln Val Ile Phe Thr Val Thr Gln Pro Ile Gln Leu  
 115 120 125  
 Glu Val Asp Leu Arg Ile Ala Phe Gly Arg Gly Tyr Thr Pro Ser Glu  
 130 135 140  
 Arg Ile Val Leu Glu Asp Lys Gly Val Tyr Glu Ile Val Leu Asp Ala  
 145 150 155 160  
 Ala Phe Ser Pro Val Thr Leu Val Asn Tyr Phe Val Glu Asp Thr Arg  
 165 170 175  
 Val Gly Gln Asp Thr Asp Phe Asp Arg Leu Val Leu Ile Val Glu Thr  
 180 185 190  
 Asp Gly Arg Val Thr Pro Lys Glu Ala Leu Ala Phe Ser Thr Gln Ile  
 195 200 205  
 Leu Thr Lys His Phe Ser Ile Phe Glu Asn Met Asp Glu Lys Lys Ile  
 210 215 220

Val Phe Glu Glu Ala Ile Ser Ile Glu Lys Glu Asn Lys Asp Asp Ile  
 225 230 235 240  
 Leu His Lys Leu Ile Leu Gly Ile Asn Glu Ile Glu Leu Ser Val Arg  
 245 250 255  
 Ser Thr Asn Cys Leu Ser Asn Ala Asn Ile Glu Thr Ile Gly Glu Leu  
 260 265 270  
 Val Ile Met Pro Glu Pro Arg Leu Leu Gln Phe Arg Asn Phe Gly Lys  
 275 280 285  
 Lys Ser Leu Cys Glu Ile Lys Asn Lys Leu Lys Glu Met Lys Leu Glu  
 290 295 300  
 Leu Gly Met Asp Leu Thr Gln Phe Gly Val Gly Leu Asp Asn Val Lys  
 305 310 315 320  
 Glu Lys Met Lys Trp Tyr Ala Glu Lys Ile Arg Ala Lys Asn Ile Lys  
 325 330 335  
 Gly

&lt;210&gt;665

&lt;211&gt;82

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;665

Leu Pro Ala Lys Lys Lys Ala Gln Ser Val Val Leu Gly Lys Glu Lys  
 1 5 10 15  
 Gly Met Ser Asp Asn Ala His Asn Leu Leu Tyr Asp Lys Phe Glu Leu  
 20 25 30  
 Pro Glu Ala Val Lys Met Leu Pro Val Glu Gly Leu Pro Ile Asp Lys  
 35 40 45  
 His Ala Arg Phe Ile Ala Glu Pro Leu Glu Arg Gly Met Gly His Thr  
 50 55 60  
 Leu Gly Asn Ala Leu Arg Arg Ala Leu Leu Ile Gly Leu Glu Ala Pro  
 65 70 75 80  
 Gly Ile

&lt;210&gt;666

&lt;211&gt;133

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;666

Leu Val Lys Asn Gln Ala Gln Ala Lys Lys Ser Val Lys Arg Lys Gln  
 1 5 10 15  
 Leu Lys Asn Ile Pro Ser Gly Val Val His Val Lys Ala Thr Phe Asn  
 20 25 30  
 Asn Thr Ile Val Ser Ile Thr Asp Pro Ala Gly Asn Val Ile Ser Trp  
 35 40 45  
 Ala Ser Ala Gly Lys Val Gly Tyr Ser Gly Ser Xaa Lys Ser Ser Ala  
 50 55 60  
 Phe Ala Ala Thr Val Ala Ala Gln Asp Ala Ala Lys Thr Ala Met Asn  
 65 70 75 80  
 Ser Gly Leu Lys Glu Xaa Xaa Val Cys Leu Lys Gly Thr Gly Ala Gly  
 85 90 95  
 Arg Glu Ser Ala Val Arg Ala Leu Ile Ser Ala Gly Leu Val Val Ser  
 100 105 110  
 Val Ile Arg Asp Glu Thr Pro Val Pro His Asn Gly Cys Arg Pro Arg  
 115 120 125  
 Lys Arg Arg Arg Val  
 130

&lt;210&gt;667

&lt;211&gt;122

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;667

Met Pro Arg Ile Ile Gly Ile Asp Ile Pro Ala Lys Lys Lys Leu Lys  
 1 5 10 15  
 Ile Ser Leu Thr Tyr Ile Tyr Gly Ile Gly Ser Ala Arg Ser Asp Glu



20 25 30  
 Ile Ile Lys Lys Leu Lys Leu Asp Pro Glu Ala Arg Ala Ser Glu Leu  
 35 40 45  
 Thr Glu Glu Glu Val Gly Arg Leu Asn Ser Leu Leu Gln Ser Glu Tyr  
 50 55 60  
 Thr Val Glu Gly Asp Leu Arg Arg Arg Val Gln Ser Asp Ile Lys Arg  
 65 70 75 80  
 Leu Ile Ala Ile His Ser Tyr Arg Gly Gln Arg His Arg Leu Ser Leu  
 85 90 95  
 Pro Val Arg Gly Gln Arg Thr Lys Thr Asn Ser Arg Thr Arg Lys Gly  
 100 105 110  
 Lys Arg Lys Thr Val Ala Gly Lys Lys Lys  
 115 120  
 <210>668  
 <211>462  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>668  
 Leu Phe Arg Pro Tyr Met Thr Thr Leu Arg Gln Phe Phe Leu Ile Thr  
 1 5 10 15  
 Glu Leu Arg Gln Lys Leu Phe Tyr Thr Phe Ala Leu Leu Thr Ala Cys  
 20 25 30  
 Arg Val Gly Val Phe Ile Pro Val Pro Gly Ile Asn Gly Glu Leu Ala  
 35 40 45  
 Val Ala Tyr Phe Lys Gln Leu Leu Gly Ser Gly Gln Asn Leu Phe Gln  
 50 55 60  
 Leu Ala Asp Ile Phe Ser Gly Gly Ala Phe Ala Gln Met Thr Val Ile  
 65 70 75 80  
 Ala Leu Gly Val Val Pro Tyr Ile Ser Ala Ser Ile Ile Val Gln Leu  
 85 90 95  
 Phe Leu Val Phe Met Pro Ala Leu Gln Arg Glu Met Arg Glu Ser Ser  
 100 105 110  
 Asp Gln Gly Lys Arg Arg Ile Gly Arg Leu Thr Arg Leu Phe Thr Val  
 115 120 125  
 Ala Leu Ala Val Ile Gln Ser Leu Leu Phe Ala Lys Phe Ala Leu Arg  
 130 135 140  
 Met Asn Leu Thr Ile Pro Gly Ile Val Leu Pro Thr Leu Leu Ser Ser  
 145 150 155 160  
 Lys Leu Phe Gly Val Pro Trp Ile Phe Tyr Ile Thr Thr Val Val Val  
 165 170 175  
 Met Thr Thr Gly Thr Leu Leu Leu Met Trp Ile Gly Glu Gln Ile Ser  
 180 185 190  
 Asp Lys Gly Ile Gly Asn Gly Ile Ser Leu Ile Ile Ala Leu Gly Ile  
 195 200 205  
 Leu Ser Ser Phe Pro Ser Val Leu Gly Ser Ile Val Asn Lys Leu Asn  
 210 215 220  
 Leu Gly Ser Gln Asp Ser Ser Asp Leu Gly Leu Ile Ser Ile Leu Ile  
 225 230 235 240  
 Leu Ala Leu Val Phe Val Phe Val Leu Ile Thr Thr Ile Leu Ile Ile  
 245 250 255  
 Glu Gly Val Arg Lys Ile Pro Val Gln Tyr Ala Arg Arg Val Ile Gly  
 260 265 270  
 Arg Arg Glu Val Pro Gly Gly Gly Ser Tyr Leu Pro Leu Lys Val Asn  
 275 280 285  
 Tyr Ala Gly Val Ile Pro Val Ile Phe Ala Ser Ser Leu Leu Met Phe  
 290 295 300  
 Pro Ala Thr Ile Gly Gln Phe Ile Ala Ser Glu Ser Ser Trp Met Lys  
 305 310 315 320  
 Arg Ile Ala Ala Leu Leu Ala Pro Gly Ser Leu Val Tyr Ser Ile Cys  
 325 330 335  
 Tyr Val Leu Leu Ile Ile Phe Phe Thr Tyr Phe Trp Thr Ala Thr Gln  
 340 345 350  
 Phe His Pro Glu Gln Ile Ala Ser Glu Met Lys Lys Asn Asn Ala Phe  
 355 360 365

Ile Pro Gly Ile Arg Gln Gly Lys Pro Thr Gln His Tyr Leu Glu Tyr  
 370 375 380  
 Thr Met Asn Arg Val Thr Leu Leu Gly Ala Leu Phe Leu Ala Ala Ile  
 385 390 395 400  
 Ala Ile Leu Pro Ser Leu Leu Gly Cys Leu Leu Arg Val Asp Ser Asn  
 405 410 415  
 Val Ser Tyr Phe Leu Gly Gly Thr Ala Met Leu Ile Val Val Gly Val  
 420 425 430  
 Val Leu Asp Thr Met Lys Gln Val Asp Ala Phe Leu Leu Met Arg Arg  
 435 440 445  
 Tyr Asp Ser Val Leu Lys Thr Asp Arg Thr Lys Gly Arg His  
 450 455 460

&lt;210&gt;669

&lt;211&gt;144

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;669

Met Ile Lys Leu Glu Ser Leu Phe Asp Ile Ser Glu Arg Lys Arg Arg  
 1 5 10 15  
 Lys Lys Leu Leu Gly Arg Gly Pro Ser Ser Gly His Gly Lys Thr Ser  
 20 25 30  
 Gly Arg Gly His Lys Gly Asp Gly Ser Arg Ser Gly Tyr Lys Arg Arg  
 35 40 45  
 Phe Gly Tyr Glu Gly Gly Gly Val Pro Leu Tyr Arg Arg Val Pro Thr  
 50 55 60  
 Arg Gly Phe Ser His Lys Arg Phe Asp Lys Cys Val Glu Glu Ile Thr  
 65 70 75 80  
 Thr Gly Arg Leu Ala Glu Leu Phe Gln Glu Gly Glu Ala Ile Thr Leu  
 85 90 95  
 Asp Ala Leu Lys Ala Lys Lys Ala Ile Ala Arg Gln Ala Val Arg Val  
 100 105 110  
 Lys Val Ile Leu Lys Gly Asp Leu Glu Lys Thr Phe Val Trp Gln Asp  
 115 120 125  
 Thr Ala Val Val Leu Ser Gln Gly Val Gln Asn Leu Leu Gly Ile Thr  
 130 135 140

&lt;210&gt;670

&lt;211&gt;165

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;670

Met Ser Leu Ser Lys Asn Ser His Lys Glu Asp Gln Leu Glu Glu Lys  
 1 5 10 15  
 Val Leu Val Val Asn Arg Cys Ser Lys Val Val Lys Gly Gly Arg Lys  
 20 25 30  
 Phe Ser Phe Ser Ala Leu Ile Leu Val Gly Asp Gly Lys Gly Arg Leu  
 35 40 45  
 Gly Tyr Gly Phe Ala Lys Ala Asn Glu Leu Thr Asp Ala Ile Arg Lys  
 50 55 60  
 Gly Gly Glu Ala Ala Lys Lys Asn Leu Met Lys Ile Glu Ala Leu Glu  
 65 70 75 80  
 Asp Gly Ser Ile Pro His Glu Val Leu Val His His Asp Gly Ala Gln  
 85 90 95  
 Leu Leu Leu Lys Pro Ala Lys Pro Gly Thr Gly Ile Val Ala Gly Ser  
 100 105 110  
 Arg Ile Arg Leu Ile Leu Glu Met Ala Gly Ile Lys Asp Ile Val Ala  
 115 120 125  
 Lys Ser Phe Gly Ser Asn Asn Pro Met Asn Gln Val Lys Ala Ala Phe  
 130 135 140  
 Lys Ala Leu Thr Gly Leu Ser Pro Arg Lys Asp Leu Leu Arg Arg Gly  
 145 150 155 160  
 Ala Ala Ile Asn Asp  
 165

&lt;210&gt;671

&lt;211&gt;93

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;671

Leu Glu Trp Val Ser Glu Pro Leu Phe Lys Val His Phe Trp Ile Ser  
 1 5 10 15  
 Pro Leu Gly Phe Leu Thr Leu Gln Lys Phe Pro Ile Pro Ser Thr Leu  
 20 25 30  
 Gln Val Ser Val Glu Lys Asn Thr Leu Ile Ser Val Lys Gly Leu Asp  
 35 40 45  
 Lys Gln Leu Val Gly Glu Phe Ala Ala Ser Ile Arg Ala Lys Arg Pro  
 50 55 60  
 Pro Glu Pro Tyr Lys Gly Lys Gly Ile Arg Tyr Glu Asn Glu Tyr Val  
 65 70 75 80  
 Arg Arg Lys Ala Gly Lys Ala Ala Lys Thr Gly Lys Lys  
 85 90

&lt;210&gt;672

&lt;211&gt;126

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;672

Met Ser Arg Lys Ala Arg Glu Pro Ile Leu Leu Pro Gln Gly Val Glu  
 1 5 10 15  
 Val Ser Ile Gln Asp Asp Lys Ile Ile Val Lys Gly Pro Lys Gly Ser  
 20 25 30  
 Leu Thr Gln Lys Ser Val Lys Glu Val Glu Ile Thr Leu Lys Asp Asn  
 35 40 45  
 Ser Ile Phe Val His Ala Ala Pro His Val Val Asp Arg Pro Ser Cys  
 50 55 60  
 Met Gln Gly Leu Tyr Trp Ala Leu Ile Ser Asn Met Val Gln Gly Val  
 65 70 75 80  
 His Leu Gly Phe Glu Lys Arg Leu Glu Met Ile Gly Val Gly Phe Arg  
 85 90 95  
 Ala Ser Val Gln Gly Ala Phe Leu Asp Leu Ser Ile Gly Val Ser His  
 100 105 110  
 Pro Thr Lys Ile Ser Tyr Pro Ile Tyr Ser Ser Gly Ile Ser  
 115 120 125

&lt;210&gt;673

&lt;211&gt;133

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;673

Met Gly Met Thr Ser Asp Ser Ile Ala Asp Leu Leu Thr Arg Ile Arg  
 1 5 10 15  
 Asn Ala Leu Met Ala Glu His Leu Tyr Val Asp Val Glu His Ser Lys  
 20 25 30  
 Met Arg Glu Ala Ile Val Lys Ile Leu Lys His Lys Gly Phe Val Ala  
 35 40 45  
 His Tyr Leu Val Xaa Glu Xaa Asn Xaa Lys Arg Ala Met Arg Val Phe  
 50 55 60  
 Leu Gln Tyr Ser Asp Asp Arg Lys Pro Val Ile His Gln Leu Lys Arg  
 65 70 75 80  
 Val Ser Lys Pro Ser Arg Arg Val Tyr Val Ser Ala Ala Lys Ile Pro  
 85 90 95  
 Tyr Val Phe Gly Asn Met Gly Ile Ser Val Leu Ser Thr Ser Gln Gly  
 100 105 110  
 Val Met Glu Gly Ser Leu Ala Arg Ser Lys Asn Ile Gly Gly Glu Leu  
 115 120 125  
 Leu Cys Leu Val Trp  
 130

&lt;210&gt;674

&lt;211&gt;180

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;674

Met Ser Arg Leu Lys Lys Phe Tyr Thr Glu Glu Ile Arg Lys Ser Leu  
 1 5 10 15  
 Phe Glu Lys Phe Gly Tyr Ala Asn Lys Met Gln Ile Pro Val Leu Lys  
 20 25 30  
 Lys Ile Val Leu Ser Met Gly Leu Ala Glu Ala Ala Lys Asp Lys Asn  
 35 40 45  
 Leu Phe Gln Ala His Leu Glu Glu Leu Thr Met Ile Ser Gly Gln Lys  
 50 55 60  
 Pro Leu Val Thr Lys Ala Arg Asn Ser Ile Ala Gly Phe Lys Leu Arg  
 65 70 75 80  
 Glu Gly Gln Gly Ile Gly Ala Lys Val Thr Leu Arg Gly Ile Arg Met  
 85 90 95  
 Tyr Asp Phe Met Asp Arg Phe Cys Asn Ile Val Ser Pro Arg Ile Arg  
 100 105 110  
 Asp Phe Arg Gly Phe Ser Asn Lys Gly Asp Gly Arg Gly Cys Tyr Ser  
 115 120 125  
 Val Gly Leu Asp Asp Gln Gln Ile Phe Pro Glu Ile Asn Leu Asp Arg  
 130 135 140  
 Val Lys Arg Thr Gln Gly Leu Asn Ile Thr Trp Val Thr Thr Ala Gln  
 145 150 155 160  
 Thr Asp Asp Glu Cys Thr Thr Leu Leu Glu Leu Met Gly Leu Arg Phe  
 165 170 175  
 Lys Lys Ala Gln  
 180

&lt;210&gt;675

&lt;211&gt;111

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;675

Met Lys Lys Gln Asn Ile Arg Val Gly Asp Lys Val Phe Ile Leu Ala  
 1 5 10 15  
 Gly Asn Asp Lys Gly Lys Glu Gly Lys Val Leu Ser Leu Thr Glu Asp  
 20 25 30  
 Lys Val Val Val Glu Gly Val Asn Val Arg Ile Lys Asn Ile Lys Arg  
 35 40 45  
 Ser Gln Gln Asn Pro Lys Gly Lys Arg Ile Ser Ile Glu Ala Pro Ile  
 50 55 60  
 His Ile Ser Asn Val Arg Leu Thr Ile Ala Gly Glu Pro Ala Lys Leu  
 65 70 75 80  
 Ser Val Lys Val Thr Glu Gln Gly Arg Glu Leu Trp Gln Arg Arg Pro  
 85 90 95  
 Asp Gly Thr Ser Gln Leu Tyr Arg Leu Val Arg Gly Lys Lys Gly  
 100 105 110

&lt;210&gt;676

&lt;211&gt;79

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;676

Met Ile Gln Gln Glu Ser Gln Leu Lys Val Ala Asp Asn Thr Gly Ala  
 1 5 10 15  
 Lys Lys Val Lys Cys Phe Lys Val Leu Gly Gly Ser Arg Arg Arg Tyr  
 20 25 30  
 Ala Thr Val Gly Asp Val Ile Val Cys Ser Val Arg Asp Val Glu Pro  
 35 40 45  
 Asn Ser Ser Ile Lys Lys Gly Arg Arg Tyr Gln Ser Cys Asp Arg Ala  
 50 55 60  
 His Thr Ser Ala Tyr Tyr Lys Lys Arg Trp Val Tyr Phe Lys Ile  
 65 70 75

&lt;210&gt;677

&lt;211&gt;86

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;677

Met Ala Ser Glu Pro Arg Gly Ser Arg Lys Val Lys Ile Gly Val Val

1 5 10 15  
 Val Ser Ala Lys Met Glu Lys Thr Val Val Val Arg Val Glu Arg Ile  
 20 25 30  
 Phe Ser His Pro Gln Tyr Leu Lys Val Val Arg Ser Ser Lys Lys Tyr  
 35 40 45  
 Tyr Ala His Thr Glu Leu Lys Val Ser Glu Gly Asp Lys Val Lys Ile  
 50 55 60  
 Gln Glu Thr Arg Pro Leu Ser Lys Leu Lys Arg Trp Arg Val Ile Glu  
 65 70 75 80  
 His Val Gly Val Val Ser  
 85

&lt;210&gt;678

&lt;211&gt;138

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;678

Met Leu Met Pro Lys Arg Thr Lys Phe Arg Lys Gln Gln Xaa Gly Gln  
 1 5 10 15  
 Phe Ala Gly Leu Ser Lys Gly Ala Thr Phe Val Asp Phe Gly Glu Tyr  
 20 25 30  
 Ala Met Gln Thr Leu Glu Arg Gly Leu Val Thr Ser Arg Lys Ile Glu  
 35 40 45  
 Ala Cys Arg Val Ala Ile Asn Arg Tyr Leu Lys Arg Arg Gly Lys Val  
 50 55 60  
 Trp Ile Arg Ile Phe Pro Asp Lys Ser Val Thr Lys Lys Pro Ala Glu  
 65 70 75 80  
 Thr Arg Met Gly Lys Gly Lys Gly Ala Pro Asp His Trp Val Ala Val  
 85 90 95  
 Val Arg Pro Gly Arg Ile Leu Phe Glu Val Ala Asn Val Ser Lys Glu  
 100 105 110  
 Asp Ala Gln Asp Ala Leu Arg Arg Ala Ala Ala Lys Leu Gly Ile Lys  
 115 120 125  
 Thr Arg Phe Val Lys Arg Val Glu Arg Val  
 130 135

&lt;210&gt;679

&lt;211&gt;223

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;679

Met Gly Gln Lys Gly Cys Pro Ile Gly Phe Arg Thr Gly Val Thr Lys  
 1 5 10 15  
 Lys Trp Arg Ser Leu Trp Tyr Gly Asn Lys Gln Glu Phe Gly Lys Phe  
 20 25 30  
 Leu Ile Glu Asp Val Arg Ile Arg Gln Phe Leu Arg Lys Lys Pro Ser  
 35 40 45  
 Cys Gln Gly Ala Ala Gly Phe Val Val Arg Arg Met Ser Gly Lys Ile  
 50 55 60  
 Glu Val Thr Ile Gln Thr Ala Arg Pro Gly Leu Val Ile Gly Lys Lys  
 65 70 75 80  
 Gly Ala Glu Val Asp Leu Leu Lys Glu Glu Leu Arg Ala Leu Thr Gly  
 85 90 95  
 Lys Glu Val Trp Leu Glu Ile Ala Glu Ile Lys Arg Pro Glu Leu Asn  
 100 105 110  
 Ala Lys Leu Val Ala Asp Asn Ile Ala Arg Gln Ile Glu Arg Arg Val  
 115 120 125  
 Ser Phe Arg Arg Ala Met Lys Lys Ala Met Gln Ser Val Met Asp Ala  
 130 135 140  
 Gly Ala Val Gly Val Lys Ile Gln Val Ser Gly Arg Leu Ala Gly Ala  
 145 150 155 160  
 Glu Ile Ala Arg Ser Glu Trp Tyr Lys Asn Gly Arg Val Pro Leu His  
 165 170 175  
 Thr Leu Arg Ala Asp Ile Asp Tyr Ala Thr Ala Cys Ala Glu Thr Thr  
 180 185 190  
 Tyr Gly Ile Ile Gly Ile Lys Val Trp Ile Asn Leu Gly Glu Asn Ser

195 200 205  
 Ser Ser Thr Thr Pro Asn Asn Pro Ala Ala Pro Ser Ala Ala Ala  
 210 215 220  
 <210>680  
 <211>115  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>680  
 Arg Arg His Ser Met Phe Lys Ala Thr Ala Arg Tyr Ile Arg Val Gln  
 1 5 10 15  
 Pro Arg Lys Ala Arg Leu Ala Ala Gly Leu Met Arg Asn Leu Ser Val  
 20 25 30  
 Gln Glu Ala Glu Glu Gln Leu Gly Phe Ser Gln Leu Lys Ala Gly Arg  
 35 40 45  
 Cys Leu Lys Lys Val Leu Asn Ser Ala Val Ala Asn Ala Glu Leu His  
 50 55 60  
 Glu Asn Ile Lys Arg Glu Asn Leu Ser Val Thr Glu Val Arg Val Asp  
 65 70 75 80  
 Ala Gly Pro Val Tyr Lys Arg Ser Lys Ser Lys Ser Arg Gly Gly Arg  
 85 90 95  
 Ser Pro Ile Leu Lys Arg Thr Ser His Leu Thr Val Ile Val Gly Glu  
 100 105 110  
 Lys Glu Arg  
 115  
 <210>681  
 <211>284  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>681  
 Met Phe Lys Lys Phe Lys Pro Val Thr Pro Gly Thr Arg Gln Leu Val  
 1 5 10 15  
 Leu Pro Ala Phe Asp Glu Leu Thr Thr Arg Gly Glu Leu Arg Gly Thr  
 20 25 30  
 Lys Ser Lys Arg Ser Leu Arg Pro Asn Lys Lys Leu Ser Phe Phe Lys  
 35 40 45  
 Lys Ser Ser Gly Gly Arg Asp Asn Leu Gly His Ile Ser Cys Arg His  
 50 55 60  
 Arg Gly Gly Gly Ala Lys Gln Leu Tyr Arg Val Val Asp Phe Lys Arg  
 65 70 75 80  
 Asn Lys Asp Gly Ile Thr Ala Lys Val Val Thr Val Glu Tyr Asp Pro  
 85 90 95  
 Asn Arg Ser Ala Tyr Ile Ala Leu Leu Ser Tyr Glu Asp Gly Glu Lys  
 100 105 110  
 Arg Tyr Ile Leu Ala Pro Lys Gly Ile Gln Arg Gly Asp Val Val Val  
 115 120 125  
 Ser Gly Glu Gly Ser Pro Phe Lys Pro Gly Cys Cys Met Thr Leu Lys  
 130 135 140  
 Ser Ile Pro Leu Gly Leu Ser Val His Asn Ile Glu Met Arg Pro Ser  
 145 150 155 160  
 Ser Gly Gly Lys Leu Val Arg Ser Ala Gly Leu Ala Ala Gln Val Ile  
 165 170 175  
 Ala Lys Ser Pro Gly Tyr Val Thr Leu Lys Met Pro Ser Gly Glu Phe  
 180 185 190  
 Arg Met Leu Asn Glu Gly Cys Arg Ala Thr Ile Gly Glu Val Ser Asn  
 195 200 205  
 Ala Asp His Asn Leu Arg Val Asp Gly Lys Ala Gly Arg Arg Arg Trp  
 210 215 220  
 Met Gly Val Arg Pro Thr Val Arg Gly Thr Ala Met Asn Pro Val Asp  
 225 230 235 240  
 His Pro His Gly Gly Glu Gly Arg His Asn Gly Tyr Ile Pro Arg  
 245 250 255  
 Thr Pro Trp Gly Lys Val Thr Lys Gly Leu Lys Thr Arg Asp Lys Asn  
 260 265 270  
 Lys Ser Asn Lys Trp Ile Val Lys Asp Arg Arg Lys

275 280  
 <210>682  
 <211>112  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>682  
 Asp Met Lys Asp Pro Tyr Asp Val Ile Lys Arg His Tyr Val Thr Glu  
 1 5 10 15  
 Lys Ala Lys Met Leu Glu His Leu Ser Ala Gly Thr Gly Glu Gly Lys  
 20 25 30  
 Lys Lys Gly Ser Phe Cys Lys Asp Pro Lys Phe Val Phe Ile Val Ser  
 35 40 45  
 His Asp Ala Thr Lys Pro Leu Ile Ala Gln Ala Leu Glu Ala Ile Tyr  
 50 55 60  
 Val Asp Lys Asn Val Lys Val Lys Ser Val Asn Thr Ile Asn Val Lys  
 65 70 75 80  
 Pro Gln Pro Ala Arg Met Phe Arg Gly Arg Arg Lys Gly Lys Thr Ser  
 85 90 95  
 Gly Phe Lys Lys Ala Ile Val Thr Phe Tyr Gln Gly His Ser Val Gly  
 100 105 110

<210>683  
 <211>224  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>683  
 Trp Phe Tyr Tyr Gln Asn Leu Asp Phe Ser Gly Asn Lys Ile Gly Glu  
 1 5 10 15  
 Val Glu Val Ala Asp Ser Leu Phe Ala Asp Glu Gly Asp Gly Leu Gln  
 20 25 30  
 Leu Ile Lys Asp Tyr Ile Val Ala Ile Arg Ala Asn Lys Arg Gln Trp  
 35 40 45  
 Ser Ala Cys Thr Arg Asn Arg Ser Glu Val Ser His Ser Thr Lys Lys  
 50 55 60  
 Pro Phe Lys Gln Lys Gly Thr Gly Asn Ser Arg Gln Gly Cys Leu Ala  
 65 70 75 80  
 Ser Pro Gln Phe Arg Gly Gly Gly Ile Val Phe Gly Pro Lys Pro Lys  
 85 90 95  
 Phe Asn Gln His Val Arg Ile Asn Arg Lys Glu Arg Lys Ala Ala Ile  
 100 105 110  
 Arg Leu Leu Leu Ala Gln Lys Ile Gln Thr Asn Lys Leu Thr Val Val  
 115 120 125  
 Asp Asp Thr Val Phe Val Asp Ala Leu Thr Ala Pro Lys Thr Gln Ser  
 130 135 140  
 Ala Leu Arg Phe Leu Lys Asp Cys Asn Val Glu Cys Arg Ser Ile Leu  
 145 150 155 160  
 Phe Ile Asp His Leu Asp His Val Glu Lys Asn Glu Asn Leu Arg Leu  
 165 170 175  
 Ser Leu Arg Asn Leu Thr Ala Val Lys Gly Phe Val Tyr Gly Ile Asn  
 180 185 190  
 Ile Asn Gly Tyr Asp Leu Ala Ser Ala His Asn Ile Val Ile Ser Lys  
 195 200 205  
 Lys Ala Leu Gln Glu Leu Val Glu Arg Leu Val Ser Glu Thr Lys Asp  
 210 215 220

<210>684  
 <211>235  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>684  
 Leu Phe Leu Gln Glu Glu Ser Lys Ser Leu Leu Leu Met Asp Lys Phe  
 1 5 10 15  
 Met Arg Ser His Ile Ser Val Met Gly Lys Lys Glu Gly Met Ile His  
 20 25 30  
 Ile Phe Asp Lys Asp Gly Ser Leu Val Ala Cys Ser Val Ile Arg Val  
 35 40 45

Glu Pro Asn Val Val Thr Gln Ile Lys Thr Lys Glu Ser Asp Gly Tyr  
 50 55 60  
 Phe Ser Leu Gln Ile Gly Ala Glu Glu Met Asn Ala Pro Ala His Thr  
 65 70 75 80  
 Ile Thr Lys Arg Val Ser Lys Pro Lys Leu Gly His Leu Arg Lys Ala  
 85 90 95  
 Gly Gly Arg Val Phe Arg Phe Leu Lys Glu Val Arg Gly Ser Glu Glu  
 100 105 110  
 Ala Leu Asn Gly Val Ser Leu Gly Asp Ala Phe Gly Leu Glu Val Phe  
 115 120 125  
 Glu Asp Val Ser Ser Val Asp Val Arg Gly Ile Ser Lys Gly Lys Gly  
 130 135 140  
 Phe Gln Gly Val Met Lys Lys Phe Gly Phe Arg Gly Gly Pro Gly Ser  
 145 150 155 160  
 His Gly Ser Gly Phe His Arg His Ala Gly Ser Ile Gly Met Arg Ser  
 165 170 175  
 Thr Pro Gly Arg Cys Phe Pro Gly Ser Lys Arg Pro Ser His Met Gly  
 180 185 190  
 Ala Glu Asn Val Thr Val Lys Asn Leu Glu Val Ile Lys Val Asp Leu  
 195 200 205  
 Glu Lys Lys Val Leu Leu Val Lys Gly Ala Ile Pro Gly Ala Arg Gly  
 210 215 220  
 Ser Ile Val Ile Val Lys His Ser Ser Arg Thr  
 225 230 235

&lt;210&gt;685

&lt;211&gt;100

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;685

Lys Val Ala Ser Lys Lys Phe Phe Arg Ser Asp Phe Phe Lys Ile Lys  
 1 5 10 15  
 Ile Lys Leu Ala Tyr Leu Pro Asp Phe Val Phe Cys His Met Leu Tyr  
 20 25 30  
 Lys Pro Ile Pro Ala Asp Ala Ala Val Lys Ala Pro Glu Ile Ala Ala  
 35 40 45  
 Glu Gln Ala Thr Val Ile Gly Lys Gly Met Ser Leu Thr Pro Ser Thr  
 50 55 60  
 Thr Asn Ser Lys Ala Phe Ser Arg Arg Val Lys Thr Phe Leu Phe Arg  
 65 70 75 80  
 Val Ala Thr Cys Ser Leu Arg Asn Ala Leu Ser Ala Leu Arg Ile Thr  
 85 90 95  
 Ser Pro Leu Asn  
 100

&lt;210&gt;686

&lt;211&gt;334

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;686

Lys Trp Arg Leu Thr Gln Leu Asp Arg Gln Glu Val Gln Gln Val Arg  
 1 5 10 15  
 Cys Cys Cys Gln Leu Pro Lys Asn Gln Arg Leu Ser Ala Pro Leu Leu  
 20 25 30  
 Arg Lys Gly Phe Ile Val Phe Asn Phe Phe Thr Asn Pro Gly Asn  
 35 40 45  
 Lys Leu Ala Lys Phe Val Gly Ala Thr Lys Ser Leu Asp Lys Cys Phe  
 50 55 60  
 Lys Leu Ser Lys Ala Val Ser Asp Cys Val Val Gly Ser Leu Glu Glu  
 65 70 75 80  
 Ala Gly Cys Thr Gly Asp Ala Leu Thr Ser Ala Arg Asn Ala Gln Gly  
 85 90 95  
 Met Leu Lys Thr Thr Arg Glu Val Val Ala Leu Ala Asn Val Leu Asn  
 100 105 110  
 Gly Ala Val Pro Ser Ile Val Asn Ser Thr Gln Arg Cys Tyr Gln Tyr  
 115 120 125



Thr Arg Gln Ala Phe Glu Leu Gly Ser Lys Thr Lys Glu Arg Lys Thr  
 130 135 140  
 Pro Gly Glu Tyr Ser Lys Met Leu Leu Thr Arg Gly Asp Tyr Leu Leu  
 145 150 155 160  
 Ala Ala Ser Arg Glu Ala Cys Thr Ala Val Gly Ala Thr Thr Tyr Ser  
 165 170 175  
 Ala Thr Phe Gly Val Leu Arg Pro Leu Met Leu Ile Asn Lys Leu Thr  
 180 185 190  
 Ala Lys Pro Phe Leu Asp Lys Ala Thr Val Gly Asn Phe Gly Thr Ala  
 195 200 205  
 Val Ala Gly Ile Met Thr Ile Asn His Met Ala Gly Val Ala Gly Ala  
 210 215 220  
 Val Gly Gly Ile Ala Leu Glu Gln Lys Leu Phe Lys Arg Ala Lys Glu  
 225 230 235 240  
 Ser Leu Tyr Asn Glu Arg Cys Ala Leu Glu Asn Gln Gln Ser Gln Leu  
 245 250 255  
 Ser Gly Asp Val Ile Leu Ser Ala Glu Arg Ala Leu Arg Lys Glu His  
 260 265 270  
 Val Ala Thr Leu Lys Arg Asn Val Leu Thr Leu Leu Glu Lys Ala Leu  
 275 280 285  
 Glu Leu Val Val Asp Gly Val Lys Leu Ile Pro Leu Pro Ile Thr Val  
 290 295 300  
 Ala Cys Ser Ala Ala Ile Ser Gly Ala Leu Thr Ala Ala Ser Ala Gly  
 305 310 315 320  
 Ile Gly Leu Tyr Ser Ile Trp Gln Lys Thr Lys Ser Gly Lys  
 325 330

&lt;210&gt;687

&lt;211&gt;321

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;687

Leu Asn Leu Lys Val Val Tyr Phe Gly Thr Pro Thr Phe Ala Ala Thr  
 1 5 10 15  
 Val Leu Gln Asp Leu Leu His His Lys Ile Gln Ile Thr Ala Val Val  
 20 25 30  
 Thr Arg Val Asp Lys Pro Gln Lys Arg Ser Ala Gln Leu Ile Pro Ser  
 35 40 45  
 Pro Val Lys Thr Ile Ala Leu Thr His Gly Leu Pro Leu Leu Gln Pro  
 50 55 60  
 Ser Lys Ala Ser Asp Pro Gln Phe Ile Glu Glu Leu Arg Ala Phe Asn  
 65 70 75 80  
 Ala Asp Val Phe Ile Val Val Ala Tyr Gly Ala Ile Leu Arg Gln Ile  
 85 90 95  
 Val Leu Asp Ile Pro Arg Tyr Gly Cys Tyr Asn Leu His Ala Gly Leu  
 100 105 110  
 Leu Pro Ala Tyr Arg Gly Ala Ala Pro Ile Gln Arg Cys Ile Met Glu  
 115 120 125  
 Gly Ala Thr Glu Ser Gly Asn Thr Val Ile Arg Met Asp Ala Gly Met  
 130 135 140  
 Asp Thr Gly Asp Met Ala Asn Ile Thr Arg Val Pro Ile Gly Pro Asp  
 145 150 155 160  
 Met Thr Ser Gly Glu Leu Ala Asp Ala Leu Ala Ser Gln Gly Ala Glu  
 165 170 175  
 Val Leu Ile Lys Thr Leu Gln Gln Ile Glu Ser Gly Gln Leu Gln Leu  
 180 185 190  
 Val Ser Gln Asp Ala Ala Leu Ala Thr Ile Ala Pro Lys Leu Ser Lys  
 195 200 205  
 Glu Glu Gly Gln Val Pro Trp Asp Lys Pro Ala Lys Glu Ala Tyr Ala  
 210 215 220  
 His Ile Arg Gly Val Thr Pro Ala Pro Gly Ala Trp Thr Leu Phe Ser  
 225 230 235 240  
 Phe Ser Glu Lys Ala Pro Lys Arg Leu Met Ile Arg Lys Ala Ser Leu  
 245 250 255  
 Leu Ala Glu Ala Gly Arg Tyr Gly Ala Pro Gly Thr Val Val Val Thr

260 265 270  
 Asp Arg Gln Glu Leu Ala Ile Ala Cys Ser Glu Gly Ala Ile Cys Leu  
 275 280 285  
 His Glu Val Gln Val Glu Gly Lys Gly Ser Thr Asn Ser Lys Ser Phe  
 290 295 300  
 Leu Asn Gly Tyr Pro Ala Lys Lys Leu Lys Ile Val Phe Thr Leu Asn  
 305 310 315 320  
 Asn

&lt;210&gt;688

&lt;211&gt;279

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;688

Met Ala Ser Ile His Pro Thr Ala Ile Ile Glu Pro Gly Ala Lys Ile  
 1 5 10 15  
 Gly Lys Asp Val Val Ile Glu Pro Tyr Val Val Ile Lys Ala Thr Val  
 20 25 30  
 Thr Leu Cys Asp Asn Val Val Val Lys Ser Tyr Ala Tyr Ile Asp Gly  
 35 40 45  
 Asn Thr Thr Ile Gly Lys Gly Thr Thr Ile Trp Pro Ser Ala Met Ile  
 50 55 60  
 Gly Asn Lys Pro Gln Asp Leu Lys Tyr Gln Gly Glu Lys Thr Tyr Val  
 65 70 75 80  
 Thr Ile Gly Glu Asn Cys Glu Ile Arg Glu Phe Ala Ile Ile Thr Ser  
 85 90 95  
 Ser Thr Phe Glu Gly Thr Thr Val Ser Ile Gly Asn Asn Cys Leu Ile  
 100 105 110  
 Met Pro Trp Ala His Val Ala His Asn Cys Thr Ile Gly Asn Asn Val  
 115 120 125  
 Val Leu Ser Asn His Ala Gln Leu Ala Gly His Val Gln Val Gly Asp  
 130 135 140  
 Tyr Ala Ile Leu Gly Gly Met Val Gly Val His Gln Phe Val Arg Ile  
 145 150 155 160  
 Gly Ala His Ala Met Val Gly Ala Leu Ser Gly Ile Arg Arg Asp Val  
 165 170 175  
 Pro Pro Tyr Thr Ile Gly Ser Gly Asn Pro Tyr Gln Leu Ala Gly Ile  
 180 185 190  
 Asn Lys Val Gly Leu Gln Arg Arg Gln Val Pro Phe Ala Thr Arg Leu  
 195 200 205  
 Ala Leu Ile Lys Ala Phe Lys Lys Ile Tyr Arg Ala Asp Gly Cys Phe  
 210 215 220  
 Phe Glu Ser Leu Glu Glu Thr Leu Glu Glu Tyr Gly Asp Ile Pro Glu  
 225 230 235 240  
 Val Lys Asn Phe Ile Glu Phe Cys Gln Ser Pro Ser Lys Arg Gly Ile  
 245 250 255  
 Glu Arg Ser Ile Asp Lys Gln Ala Leu Glu Glu Glu Ser Ala Asp Lys  
 260 265 270  
 Glu Gly Val Leu Ile Glu Ser  
 275

&lt;210&gt;689

&lt;211&gt;153

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;689

Met Asn Gln Pro Ser Val Ile Lys Leu Arg Glu Leu Leu Asp Leu Leu  
 1 5 10 15  
 Pro His Arg Tyr Pro Phe Leu Leu Val Asp Lys Val Leu Ser Tyr Asp  
 20 25 30  
 Ile Glu Ala Arg Ser Ile Thr Ala Gln Lys Asn Val Thr Ile Asn Glu  
 35 40 45  
 Pro Phe Phe Met Gly His Phe Pro Asn Ala Pro Ile Met Pro Gly Val  
 50 55 60  
 Leu Ile Leu Glu Ala Leu Ala Gln Ala Ala Gly Val Leu Ile Gly Leu

65 70 75 80  
 Val Leu Glu Asn Asp Arg Asn Lys Arg Ile Ala Leu Phe Leu Gly Ile  
 85 90 95  
 Gln Lys Ala Lys Phe Arg Gln Ala Val Arg Pro Gly Asp Val Leu Thr  
 100 105 110  
 Leu Gln Ala Asp Phe Ser Leu Ile Ser Ser Lys Gly Gly Lys Ala Trp  
 115 120 125  
 Ala Gln Ala Arg Val Asp Ser Gln Leu Val Thr Glu Ala Glu Leu Ser  
 130 135 140  
 Phe Ala Leu Val Asp Lys Glu Ser Ile  
 145 150

&lt;210&gt;690

&lt;211&gt;166

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;690

Ser Ile Lys Gln Val Phe Val Asn Lys Lys Ile Xaa Val Ser Ile Ala  
 1 5 10 15  
 Arg Leu Thr Arg Pro Val Tyr Tyr Gln His Gln Asp Ile Phe Leu Ala  
 20 25 30  
 Ala Phe Pro Ser Asp Glu Leu Lys Ile Ser Tyr Thr Leu His Tyr Pro  
 35 40 45  
 Gln Ser Ser Thr Ile Gly Thr Gln Tyr Lys Ser Leu Val Ile Asn Glu  
 50 55 60  
 Glu Ser Phe Arg Gln Glu Ile Ala Pro Cys Arg Thr Phe Ala Leu Tyr  
 65 70 75 80  
 Asn Glu Leu Cys Phe Leu Met Glu Lys Gly Leu Ile Gly Gly Gly Cys  
 85 90 95  
 Leu Asp Asn Ala Val Val Phe Lys Asp Asp Gly Ile Ile Ser Arg Gly  
 100 105 110  
 Gln Leu Arg Phe Ala Asp Glu Pro Val Arg His Lys Ile Leu Asp Leu  
 115 120 125  
 Ile Gly Asp Leu Ser Leu Val Gly Arg Pro Phe Val Ala His Val Leu  
 130 135 140  
 Ala Val Gly Ser Gly His Ser Ser Asn Ile Ala Phe Gly Lys Lys Ile  
 145 150 155 160  
 Leu Glu Ala Leu Glu Leu  
 165

&lt;210&gt;691

&lt;211&gt;152

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;691

Met Leu Glu Arg Thr Gln Arg Thr Leu Lys Arg Glu Val Arg Tyr Ser  
 1 5 10 15  
 Gly Val Gly Ile His Leu Gly Lys Ser Ser Thr Leu His Leu Gln Pro  
 20 25 30  
 Ala Gln Thr Asn Thr Gly Ile Val Phe Gln Arg Gln Ser Ala Ser Gly  
 35 40 45  
 Asn Tyr Glu Asn Val Pro Ala Leu Leu Asp His Val Tyr Thr Thr Gly  
 50 55 60  
 Arg Ser Thr Thr Leu Ser Arg Gly Ser Ala Val Ile Ala Thr Val Glu  
 65 70 75 80  
 His Leu Met Ala Ala Leu Arg Ser Asn Asn Ile Asp Asn Leu Ile Ile  
 85 90 95  
 Gln Cys Ser Gly Glu Glu Ile Pro Ile Gly Asp Gly Ser Ser Asn Val  
 100 105 110  
 Phe Val Glu Leu Ile Asp Gln Ala Gly Ile Cys Glu Gln Glu Asp Xaa  
 115 120 125  
 Gly Phe His Cys Glu Thr Asn Thr Ser Cys Ile Leu Ser Thr Ser Gly  
 130 135 140  
 His Phe Phe Ser Ser Phe Ser Leu  
 145 150

&lt;210&gt;692

&lt;211&gt;541

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;692

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Val Leu Arg Ile Phe Cys Phe Val Ile Ser Trp Cys Leu Ile Ala Phe
 1           5           10           15
Ala Gln Pro Asp Leu Ser Gly Phe Val Ser Ile Leu Gly Ala Ala Cys
          20           25           30
Gly Tyr Gly Phe Phe Trp Tyr Ser Leu Glu Pro Leu Lys Lys Pro Ser
          35           40           45
Leu Pro Leu Arg Thr Leu Phe Val Ser Cys Phe Phe Trp Ile Phe Thr
          50           55           60
Ile Glu Gly Ile His Phe Ser Trp Met Leu Ser Asp Gln Tyr Ile Gly
 65           70           75           80
Lys Leu Ile Tyr Leu Val Trp Leu Thr Leu Ile Thr Ile Leu Ser Val
          85           90           95
Leu Phe Ser Gly Phe Ser Cys Leu Leu Val Ala Ile Val Arg Gln Lys
          100          105          110
Arg Thr Ala Phe Leu Trp Ser Leu Pro Gly Val Trp Val Ala Ile Glu
          115          120          125
Met Leu Arg Phe Tyr Gly Ile Phe Ser Gly Met Ser Phe Asp Tyr Leu
          130          135          140
Gly Trp Pro Met Thr Ala Ser Ala Tyr Gly Arg Gln Phe Gly Gly Phe
145          150          155          160
Leu Gly Trp Ala Gly Gln Ser Phe Ala Val Ile Ala Val Asn Met Ser
          165          170          175
Phe Tyr Cys Leu Leu Leu Lys Lys Pro His Ala Lys Met Leu Trp Val
          180          185          190
Leu Thr Leu Leu Leu Pro Tyr Thr Phe Gly Ala Ile His Tyr Glu Tyr
          195          200          205
Leu Lys His Ala Phe Gln Gln Asp Lys Arg Ala Leu Arg Val Ala Val
          210          215          220
Val Gln Pro Ala His Pro Pro Ile Arg Pro Lys Leu Lys Ser Pro Ile
225          230          235          240
Val Val Trp Glu Gln Leu Leu Gln Leu Val Ser Pro Ile Gln Gln Pro
          245          250          255
Ile Asp Leu Leu Ile Phe Pro Glu Val Val Val Pro Phe Gly Lys His
          260          265          270
Arg Gln Val Tyr Pro Tyr Glu Ser Cys Ala His Leu Leu Ser Ser Phe
          275          280          285
Ala Pro Leu Pro Glu Gly Lys Ala Phe Leu Ser Asn Ser Asp Cys Ala
          290          295          300
Thr Ala Leu Ser Gln His Phe Gln Cys Pro Val Ile Ile Gly Leu Glu
305          310          315          320
Arg Trp Val Lys Lys Glu Asn Val Leu Tyr Trp Tyr Asn Ser Ala Glu
          325          330          335
Val Ile Ser His Lys Gly Ile Ser Val Gly Tyr Asp Lys Arg Ile Leu
          340          345          350
Val Pro Gly Gly Glu Tyr Ile Pro Gly Gly Lys Phe Gly Ser Leu Ile
          355          360          365
Cys Arg Gln Leu Phe Pro Lys Tyr Ala Leu Gly Cys Lys Arg Leu Pro
          370          375          380
Gly Arg Arg Ser Gly Val Val Gln Val Arg Gly Leu Pro Arg Ile Gly
385          390          395          400
Ile Thr Ile Cys Tyr Glu Glu Thr Phe Gly Tyr Arg Leu Gln Ser Tyr
          405          410          415
Lys Arg Gln Gly Ala Glu Leu Leu Val Asn Leu Thr Asn Asp Gly Trp
          420          425          430
Tyr Pro Glu Ser Arg Leu Pro Lys Val His Phe Leu His Gly Met Leu
          435          440          445
Arg Asn Gln Glu Phe Gly Met Pro Cys Val Arg Ala Cys Gln Thr Gly
          450          455          460
Val Thr Ala Thr Val Asp Ser Leu Gly Arg Ile Leu Lys Ile Leu Pro
465          470          475          480

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<210>693

<211>155

<212>PRT

<213>Chlamydia pneumoniae

<400>693

<210>694

<211>252

<212>PRT

<213>Chlamydia pneumoniae

<400>694

811

Pro Leu Ala Tyr Leu Gln Trp Ala Ser Lys Met Asp Phe Asp Ser Asp  
 210 215 220  
 Leu Leu Phe Ser Ile Arg His Glu Ile Lys His Arg Gln Lys Gly Thr  
 225 230 235 240  
 Gly Phe Ser Gln Val Asn Asn Pro Phe Met Glu Leu  
 245 250

&lt;210&gt;695

&lt;211&gt;142

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;695

Pro Met Gly Arg Tyr Arg Arg Val Ser His Ser Ser Gln Glu Thr Leu  
 1 5 10 15  
 Leu Leu Gly Thr Glu Leu Gly Gln Val Leu Val Pro Gly Ala Val Leu  
 20 25 30  
 Leu Leu Phe Gly Asp Tyr Gly Ala Gly Lys Thr Glu Phe Val Arg Gly  
 35 40 45  
 Ile Val Ser Gly Tyr Leu Gly Asp Thr Ile Ala Glu Glu Val Ala Ser  
 50 55 60  
 Pro Ser Phe Ser Ile Leu His Val Tyr Gly Asn Glu Pro Lys Arg Leu  
 65 70 75 80  
 Cys His Tyr Asp Leu Tyr Arg Ile Asp Gln Lys Asn Gln Glu Tyr Ile  
 85 90 95  
 Phe Gln Asp Ala Glu Glu Asp Asp Val Leu Cys Ile Glu Trp Ala Asp  
 100 105 110  
 Arg Leu Pro Lys Pro Arg Phe Cys Asp Thr Ile Asn Ile Tyr Ile Thr  
 115 120 125  
 Met Gln Thr Asn Met Glu Arg Glu Ile Ile Ile Glu Lys Arg  
 130 135 140

&lt;210&gt;696

&lt;211&gt;191

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;696

Phe Ser Lys Leu Xaa Glu Asp Ala Val Arg Ile Leu Glu Gln Asp Lys  
 1 5 10 15  
 Lys Ile Trp Arg Glu Thr Glu Ile Gln Ile Ser Ser Glu Lys Pro Gln  
 20 25 30  
 Val Asn Glu Asn Thr Lys Arg Ile Tyr Ile Cys Pro Phe Thr Gly Lys  
 35 40 45  
 Val Phe Ala Asp Asn Val Tyr Ala Asn Pro Gln Asp Ala Ile Tyr Asp  
 50 55 60  
 Trp Leu Ser Ser Cys Pro Gln Asn Met Glu Lys Gln Gly Gly Val Arg  
 65 70 75 80  
 Ile Lys Arg Phe Leu Val Ser Glu Asp Pro Asp Val Ile Lys Glu Tyr  
 85 90 95  
 Ala Val Pro Pro Lys Glu Pro Ile Ile Lys Thr Val Phe Ala Ser Ala  
 100 105 110  
 Ile Thr Gly Lys Leu Phe His Ser Leu Pro Pro Leu Leu Glu Asp Phe  
 115 120 125  
 Ile Ser Ser Tyr Leu Arg Pro Met Thr Leu Glu Glu Val Gln Asn Gln  
 130 135 140  
 Thr Lys Phe Gln Leu Glu Ser Ser Phe Leu Ser Leu Leu Gln Asp Ala  
 145 150 155 160  
 Leu Val Glu Asp Lys Ile Ala Ala Phe Ile Glu Ser Leu Ala Asp Asp  
 165 170 175  
 Thr Ala Phe His Val Tyr Ile Ser Gln Trp Val Asp Thr Glu Glu  
 180 185 190

&lt;210&gt;697

&lt;211&gt;102

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;697

Met Val Lys Ile Ile Ser Ser Glu Asn Phe Asp Ser Phe Ile Ala Ser

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      1           5           10           15
Gly Leu Val Leu Val Asp Phe Phe Ala Glu Trp Cys Gly Pro Cys Arg
      20           25           30
Met Leu Thr Pro Ile Leu Glu Asn Leu Ala Ala Glu Leu Pro His Val
      35           40           45
Thr Ile Gly Lys Ile Asn Ile Asp Glu Asn Ser Lys Pro Ala Glu Thr
      50           55           60
Tyr Glu Val Ser Ser Ile Pro Thr Leu Ile Leu Phe Lys Asp Gly Asn
      65           70           75           80
Glu Val Ala Arg Val Val Gly Leu Lys Asp Lys Glu Phe Leu Thr Asn
      85           90           95
Leu Ile Asn Lys His Ala
      100

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&lt;210&gt;698

&lt;211&gt;156

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;698

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Met Arg Val Val Leu His Cys Pro Asp Ile Pro Gln Asn Thr Gly Asn
      1           5           10           15
Ile Gly Arg Thr Cys Val Ala Leu Gly Ala Glu Leu Ile Leu Val Arg
      20           25           30
Pro Leu Gly Phe Ser Leu Ala Asp Lys Phe Val Lys Arg Ala Gly Met
      35           40           45
Asp Tyr Trp Asp Lys Leu Gln Leu Thr Val Val Asp Ser Ile Glu Glu
      50           55           60
Ala Leu His Asp Val Pro Glu Asp Gln Ile Phe Cys Leu Cys Thr Lys
      65           70           75           80
Gly Ser Ala Ser Tyr Thr Glu Phe Ser Leu Pro Ser Ser Gly Thr Tyr
      85           90           95
Val Phe Gly Ser Glu Ser Lys Gly Leu Pro Lys Glu Ile Leu Lys Lys
      100           105           110
Tyr Tyr Lys Asn Cys Leu Arg Ile Pro Met Gln Gln Asp Ile Arg Ser
      115           120           125
Leu Asn Leu Ala Thr Ser Val Gly Ile Val Leu Tyr Glu Val Val Arg
      130           135           140
Gln Lys Thr Val Ala Leu Gln Lys Asn Pro Thr Val
      145           150           155

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&lt;210&gt;699

&lt;211&gt;258

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;699

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Met Asn Arg Arg Trp Asn Leu Val Leu Ala Thr Val Ala Leu Ala Leu
      1           5           10           15
Ser Val Ala Ser Cys Asp Val Arg Ser Lys Asp Lys Asp Lys Asp Gln
      20           25           30
Gly Ser Leu Val Glu Tyr Lys Asp Asn Lys Asp Thr Asn Asp Ile Glu
      35           40           45
Leu Ser Asp Asn Gln Lys Leu Ser Arg Thr Phe Gly His Leu Leu Ala
      50           55           60
Arg Gln Leu Arg Lys Ser Glu Asp Met Phe Phe Asp Ile Ala Glu Val
      65           70           75           80
Ala Lys Gly Leu Gln Ala Glu Leu Val Cys Lys Ser Ala Pro Leu Thr
      85           90           95
Glu Thr Glu Tyr Glu Glu Lys Met Ala Glu Val Gln Lys Leu Val Phe
      100           105           110
Glu Lys Lys Ser Lys Glu Asn Leu Ser Leu Ala Glu Lys Phe Leu Lys
      115           120           125
Glu Asn Ser Lys Asn Ala Gly Val Val Glu Val Gln Pro Ser Lys Leu
      130           135           140
Gln Tyr Lys Ile Ile Lys Glu Gly Ala Gly Lys Ala Ile Ser Gly Lys
      145           150           155           160
Pro Ser Ala Leu Leu His Tyr Lys Gly Ser Phe Ile Asn Gly Gln Val

```

165 170 175  
 Phe Ser Ser Ser Glu Gly Asn Asn Glu Pro Ile Leu Leu Pro Leu Gly  
 180 185 190  
 Gln Thr Ile Pro Gly Phe Ala Leu Gly Met Gln Gly Met Lys Glu Gly  
 195 200 205  
 Glu Thr Arg Val Leu Tyr Ile His Pro Asp Leu Ala Tyr Gly Thr Ala  
 210 215 220  
 Gly Gln Leu Pro Pro Asn Ser Leu Leu Ile Phe Glu Ile Asn Leu Ile  
 225 230 235 240  
 Gln Ala Ser Ala Asp Glu Val Ala Ala Val Pro Gln Glu Gly Asn Gln  
 245 250 255  
 Gly Glu

&lt;210&gt;700

&lt;211&gt;584

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;700

Met Lys Tyr Arg Thr His Arg Cys Asn Glu Leu Thr Ser Asn His Ile  
 1 5 10 15  
 Gly Glu Asn Val Gln Leu Ala Gly Trp Val His Arg Tyr Arg Asn His  
 20 25 30  
 Gly Gly Val Val Phe Ile Xaa Leu Arg Asp Arg Phe Gly Ile Thr Gln  
 35 40 45  
 Ile Val Cys Arg Glu Asp Glu Gln Pro Glu Leu His Gln Arg Leu Asp  
 50 55 60  
 Ala Val Arg Ser Glu Trp Val Leu Ser Val Arg Gly Lys Val Cys Pro  
 65 70 75 80  
 Arg Leu Ala Gly Met Glu Asn Pro Asn Leu Ala Thr Gly His Ile Glu  
 85 90 95  
 Val Glu Val Ala Ser Phe Glu Val Leu Ser Lys Ser Gln Asn Leu Pro  
 100 105 110  
 Phe Ser Ile Ala Asp Asp His Ile Asn Val Asn Glu Glu Leu Arg Leu  
 115 120 125  
 Glu Tyr Arg Tyr Leu Asp Met Arg Arg Gly Asp Ile Ile Glu Lys Leu  
 130 135 140  
 Leu Cys Arg His Gln Val Met Leu Ala Cys Arg Asn Phe Met Asp Ala  
 145 150 155 160  
 Gln Gly Phe Thr Glu Ile Val Thr Pro Val Leu Gly Lys Ser Thr Pro  
 165 170 175  
 Glu Gly Ala Arg Asp Tyr Leu Val Pro Ser Arg Ile Tyr Pro Gly Lys  
 180 185 190  
 Phe Tyr Ala Leu Pro Gln Ser Pro Gln Leu Phe Lys Gln Leu Leu Met  
 195 200 205  
 Val Gly Gly Leu Asp Arg Tyr Phe Gln Ile Ala Thr Cys Phe Arg Asp  
 210 215 220  
 Glu Asp Leu Arg Ala Asp Arg Gln Pro Glu Phe Ala Gln Ile Asp Ile  
 225 230 235 240  
 Glu Met Ser Phe Gly Asp Thr Gln Asp Leu Leu Pro Ile Ile Glu Gln  
 245 250 255  
 Leu Val Ala Thr Leu Phe Ala Thr Gln Gly Ile Glu Ile Pro Leu Pro  
 260 265 270  
 Leu Ala Lys Met Thr Tyr Gln Glu Ala Lys Asp Ser Tyr Gly Thr Asp  
 275 280 285  
 Lys Pro Asp Leu Arg Phe Asp Leu Lys Leu Lys Asp Cys Arg Asp Tyr  
 290 295 300  
 Ala Lys Arg Ser Ser Phe Ser Ile Phe Leu Asp Gln Leu Ala His Gly  
 305 310 315 320  
 Gly Thr Ile Lys Gly Phe Cys Val Pro Gly Gly Ala Thr Met Ser Arg  
 325 330 335  
 Lys Gln Leu Asp Gly Tyr Thr Glu Phe Val Lys Arg Tyr Gly Ala Met  
 340 345 350  
 Gly Leu Val Trp Ile Lys Asn Gln Glu Gly Lys Val Ala Ser Asn Ile  
 355 360 365



Ala Lys Phe Met Asp Glu Glu Val Phe His Glu Leu Phe Ala Tyr Phe  
 370 375 380  
 Asp Ala Lys Asp Gln Asp Ile Leu Leu Leu Ile Ala Ala Pro Glu Ser  
 385 390 395 400  
 Val Ala Asn Gln Ser Leu Asp His Leu Arg Arg Leu Ile Ala Lys Glu  
 405 410 415  
 Arg Glu Leu Tyr Ser Asp Asn Gln Tyr Asn Phe Val Trp Ile Thr Asp  
 420 425 430  
 Phe Pro Leu Phe Ser Leu Glu Asp Gly Lys Ile Val Ala Glu His His  
 435 440 445  
 Pro Phe Thr Ala Pro Leu Glu Glu Asp Ile Pro Leu Leu Glu Thr Asp  
 450 455 460  
 Pro Leu Ala Val Arg Ser Ser Tyr Asp Leu Val Leu Asn Gly Tyr  
 465 470 475 480  
 Glu Ile Ala Ser Gly Ser Gln Arg Ile His Asn Pro Asp Leu Gln Ser  
 485 490 495  
 Gln Ile Phe Thr Ile Leu Lys Ile Ser Pro Glu Ser Ile Gln Glu Lys  
 500 505 510  
 Phe Gly Phe Phe Ile Lys Ala Leu Ser Phe Gly Thr Pro Pro His Leu  
 515 520 525  
 Gly Ile Ala Leu Gly Leu Asp Arg Leu Val Met Val Leu Thr Ala Ala  
 530 535 540  
 Glu Ser Ile Arg Glu Val Ile Ala Phe Pro Lys Thr Gln Lys Ala Ser  
 545 550 555 560  
 Asp Leu Met Met Asn Ala Pro Ser Glu Ile Met Ser Ser Gln Leu Lys  
 565 570 575  
 Glu Leu Ser Ile Lys Val Ala Phe  
 580

&lt;210&gt;701

&lt;211&gt;430

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;701

Val Thr Val Thr Leu Pro Lys Gly Val Phe Asp Ile Phe Pro Tyr Leu  
 1 5 10 15  
 Ala Asp Ala Lys Gln Leu Trp Arg His Thr Ser Leu Trp His Ser Val  
 20 25 30  
 Glu Lys Ala Ile His Thr Val Cys Met Leu Tyr Gly Phe Cys Glu Ile  
 35 40 45  
 Arg Thr Pro Ile Phe Glu Lys Ser Glu Val Phe Leu His Val Gly Glu  
 50 55 60  
 Glu Ser Asp Val Val Lys Lys Glu Val Tyr Ser Phe Leu Asp Arg Lys  
 65 70 75 80  
 Gly Arg Ser Met Thr Leu Arg Pro Glu Gly Thr Ala Ala Val Val Arg  
 85 90 95  
 Ser Phe Leu Glu His Gly Ala Ser His Arg Ser Asp Asn Lys Phe Tyr  
 100 105 110  
 Tyr Ile Leu Pro Met Phe Arg Tyr Glu Arg Gln Gln Ala Gly Arg Tyr  
 115 120 125  
 Arg Gln His His Gln Phe Gly Val Glu Ala Ile Gly Val Arg His Pro  
 130 135 140  
 Leu Arg Asp Ala Glu Val Leu Ala Leu Leu Trp Asp Phe Tyr Ser Arg  
 145 150 155 160  
 Val Gly Leu Gln His Met Gln Ile Gln Leu Asn Phe Leu Gly Gly Ser  
 165 170 175  
 Glu Thr Arg Phe Arg Tyr Asp Lys Val Leu Arg Ala Tyr Leu Lys Glu  
 180 185 190  
 Ser Met Gly Glu Leu Ser Ala Leu Ser Gln Gln Arg Phe Ser Thr Asn  
 195 200 205  
 Val Leu Arg Ile Leu Asp Ser Lys Glu Pro Glu Asp Gln Glu Ile Ile  
 210 215 220  
 Arg Gln Ala Pro Pro Ile Leu Asp Tyr Val Ser Asp Glu Asp Leu Lys  
 225 230 235 240  
 Tyr Phe Asn Glu Ile Leu Asp Ala Leu Arg Val Leu Glu Ile Pro Tyr

245 250 255  
 Ala Ile Asn Pro Arg Leu Val Arg Gly Leu Asp Tyr Tyr Ser Asp Leu  
 260 265 270  
 Val Phe Glu Ala Thr Thr Thr Phe Gln Glu Val Ser Tyr Ala Leu Gly  
 275 280 285  
 Gly Gly Gly Arg Tyr Asp Gly Leu Ile Ser Ala Phe Gly Gly Ala Ser  
 290 295 300  
 Leu Pro Ala Cys Gly Phe Gly Val Gly Leu Glu Arg Ala Ile Gln Thr  
 305 310 315 320  
 Leu Leu Ala Gln Lys Arg Ile Glu Pro Gln Phe Pro His Lys Leu Arg  
 325 330 335  
 Leu Ile Pro Met Glu Pro Asp Ala Asp Gln Phe Cys Leu Glu Trp Ser  
 340 345 350  
 Gln His Leu Arg Arg Leu Gly Ile Pro Thr Glu Val Asp Trp Ser His  
 355 360 365  
 Lys Lys Val Lys Gly Ala Leu Lys Ala Ala Ser Thr Glu Gln Val Ser  
 370 375 380  
 Phe Val Cys Leu Ile Gly Glu Arg Glu Leu Ile Ser Gln Gln Leu Val  
 385 390 395 400  
 Ile Lys Asn Met Ser Leu Arg Lys Glu Phe Gly Thr Lys Glu Glu  
 405 410 415  
 Val Glu Gln Arg Leu Leu Tyr Glu Ile Gln Asn Thr Pro Leu  
 420 425 430  
 <210>702  
 <211>352  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>702  
 Met Asn Val Trp Thr Lys Phe Phe Gln Pro Pro Lys His Ile Lys Glu  
 1 5 10 15  
 Ile Glu Asp Gln Glu Val Val Lys Lys Tyr Lys Tyr Trp Arg Ile  
 20 25 30  
 Arg Ile Phe Tyr Ser Met Phe Ile Gly Tyr Ile Phe Tyr Tyr Phe Thr  
 35 40 45  
 Arg Lys Ser Phe Thr Phe Ala Met Pro Thr Leu Ile Ala Asp Leu Gly  
 50 55 60  
 Phe Asp Lys Ala Gln Leu Gly Ile Ile Gly Ser Thr Leu Tyr Phe Ser  
 65 70 75 80  
 Tyr Gly Ile Ser Lys Phe Val Ser Gly Val Met Ser Asp Gln Ser Asn  
 85 90 95  
 Pro Arg Tyr Phe Met Ala Ile Gly Leu Met Ile Thr Gly Leu Thr Asn  
 100 105 110  
 Ile Phe Phe Gly Met Ser Ser Ser Ile Val Leu Phe Ala Leu Trp Trp  
 115 120 125  
 Gly Leu Asn Gly Trp Phe Gln Gly Trp Gly Trp Pro Pro Cys Ala Arg  
 130 135 140  
 Leu Leu Thr His Trp Tyr Ala Lys Ser Glu Arg Gly Thr Trp Trp Ser  
 145 150 155 160  
 Val Trp Ser Thr Ser His Asn Ile Gly Gly Ala Leu Ile Pro Ile Leu  
 165 170 175  
 Thr Gly Phe Ile Ile Asp Tyr Ser Gly Trp Arg Gly Ala Met Tyr Val  
 180 185 190  
 Pro Gly Ile Leu Cys Ile Gly Met Gly Leu Val Leu Ile Asn Arg Leu  
 195 200 205  
 Arg Asp Thr Pro Gln Ser Leu Gly Leu Pro Pro Ile Glu Lys Tyr Lys  
 210 215 220  
 Arg Asp Pro His His Ala His His Glu Gly Lys Ser Ala Ser Glu Gly  
 225 230 235 240  
 Thr Glu Glu Ile Glu Arg Glu Leu Ser Thr Arg Glu Ile Leu Phe Thr  
 245 250 255  
 Tyr Val Leu Thr Asn Gln Trp Leu Trp Phe Leu Ala Ala Ala Ser Phe  
 260 265 270  
 Phe Ile Tyr Ile Val Arg Met Ala Val Asn Asp Trp Ser Ala Leu Phe  
 275 280 285

Leu Ile Glu Thr Lys His Tyr Ala Ala Val Lys Ala Asn Phe Cys Val  
 290 295 300  
 Ser Leu Phe Glu Ile Gly Gly Leu Phe Gly Met Leu Val Ala Gly Trp  
 305 310 315 320  
 Leu Ser Asp Lys Ile Ser Lys Gly Asn Arg Gly Pro Met Lys Arg Pro  
 325 330 335  
 Leu Leu Phe Arg Phe Ala Val Cys Tyr Phe Arg His Val Val Phe Thr  
 340 345 350

&lt;210&gt;703

&lt;211&gt;122

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;703

Asn Val Leu Phe Ser Leu Gly Leu Leu Phe Ala Ile Leu Gly Met Trp  
 1 5 10 15  
 Phe Ser Arg Ser His Asn Gln Trp Trp Val Asp Gly Thr Leu Leu Phe  
 20 25 30  
 Val Ile Gly Phe Phe Leu Tyr Gly Pro Gln Met Met Ile Gly Leu Ala  
 35 40 45  
 Ala Ala Glu Leu Ser His Lys Lys Ala Ala Gly Thr Ala Ser Gly Phe  
 50 55 60  
 Thr Gly Trp Phe Ala Tyr Phe Gly Ala Thr Phe Ala Gly Tyr Pro Leu  
 65 70 75 80  
 Gly Lys Val Thr Asp Val Trp Gly Trp Lys Gly Phe Phe Ile Ala Leu  
 85 90 95  
 Leu Ala Cys Ala Ser Ile Ala Leu Leu Phe Leu Pro Thr Trp Asn  
 100 105 110  
 Ala Thr Glu Lys Asn Thr Arg Ser Lys Ala  
 115 120

&lt;210&gt;704

&lt;211&gt;1243

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;704

Gly Phe Phe Leu Thr Trp Ile Pro Leu His Cys His Ser Gln Tyr Ser  
 1 5 10 15  
 Val Leu Asp Ala Met Ser Ser Ile Lys Asp Phe Val Ala Lys Gly Gln  
 20 25 30  
 Glu Phe Gly Ile Pro Ala Leu Ala Leu Thr Asp His Gly Asn Leu Tyr  
 35 40 45  
 Gly Ala Val Asp Phe Tyr Lys Glu Cys Thr Gln Lys Gly Ile Gln Pro  
 50 55 60  
 Ile Ile Gly Cys Glu Cys Tyr Ile Ala Pro Gly Ser Arg Phe Asp Lys  
 65 70 75 80  
 Lys Lys Glu Lys Arg Ser Arg Ala Ala His His Leu Ile Leu Leu Cys  
 85 90 95  
 Lys Asn Glu Gln Gly Tyr Arg Asn Leu Cys Ile Leu Thr Ser Leu Ala  
 100 105 110  
 Phe Thr Glu Gly Phe Tyr Tyr Phe Pro Arg Ile Asp Lys Asp Leu Leu  
 115 120 125  
 Arg Gln Tyr Ser Glu Gly Leu Ile Cys Leu Ser Gly Cys Leu Ser Ser  
 130 135 140  
 Ser Val Ser Asp Ala Ala Leu Lys Ser Pro Glu Ala Leu Leu Leu Glu  
 145 150 155 160  
 Leu Gln Trp Phe Gln Asp Leu Phe Lys Asp Asp Tyr Phe Thr Glu Val  
 165 170 175  
 Gln Leu His Lys Met Ser Glu Glu Ser Ile Ala Gly Phe Lys Glu Glu  
 180 185 190  
 Trp Leu Lys Gln Glu Tyr Tyr Ser Leu Ile Glu Lys Gln Ile Lys Val  
 195 200 205  
 Asn Thr Ala Val Leu Glu Ala Ser Lys Arg Leu Gly Ile Pro Thr Val  
 210 215 220  
 Ala Thr Asn Asp Ile His Tyr Ile Asn Ala Asn Asp Trp Gln Ala His  
 225 230 235 240

Glu Ile Leu Leu Asn Val Gln Ser Gly Glu Thr Val Arg Ile Ala Lys  
 245 250 255  
 Gln Asn Thr His Ile Pro Asn Pro Lys Arg Lys Val Tyr Arg Ser Arg  
 260 265 270  
 Glu Tyr Tyr Phe Lys Ser Pro Ala Gln Met Ala Glu Leu Phe Lys Asp  
 275 280 285  
 Ile Pro Glu Val Ile Ser Asn Thr Leu Glu Val Ala Lys Arg Cys Asp  
 290 295 300  
 Phe Thr Phe Asp Phe Ser Lys Lys His Tyr Pro Ile Tyr Val Pro Glu  
 305 310 315 320  
 Ser Leu Lys Thr Leu Asn Ser Tyr Thr Glu Glu Asp Arg Tyr Gln Ala  
 325 330 335  
 Ser Ala Val Phe Leu Lys Gln Leu Ala Glu Glu Ala Leu Pro Lys Lys  
 340 345 350  
 Tyr Ser Ser Glu Val Leu Ala His Ile Ala Lys Lys Phe Pro His Arg  
 355 360 365  
 Asp Pro Ile Asp Ile Val Lys Glu Arg Met Asp Met Glu Met Ala Ile  
 370 375 380  
 Ile Ile Pro Lys Gly Met Cys Asp Tyr Leu Leu Ile Val Trp Asp Ile  
 385 390 395 400  
 Ile His Trp Ala Lys Ala Asn Gly Ile Pro Val Gly Pro Gly Arg Gly  
 405 410 415  
 Ser Gly Ala Gly Ser Val Leu Leu Phe Leu Leu Gly Ile Thr Glu Ile  
 420 425 430  
 Glu Pro Ile Arg Phe Asp Leu Phe Phe Glu Arg Phe Ile Asn Pro Glu  
 435 440 445  
 Arg Leu Ser Tyr Pro Asp Ile Asp Ile Cys Met Ala Gly Arg  
 450 455 460  
 Glu Arg Val Ile Asn Tyr Ala Ile Glu Arg His Gly Lys Asp Asn Val  
 465 470 475 480  
 Ala Gln Ile Ile Thr Phe Gly Thr Met Lys Ala Lys Met Ala Val Lys  
 485 490 495  
 Asp Val Gly Arg Thr Leu Asp Met Ala Leu Ser Lys Val Asn His Ile  
 500 505 510  
 Ala Lys His Ile Pro Asp Leu Asn Thr Thr Leu Ser Lys Ala Leu Glu  
 515 520 525  
 Thr Asp Pro Asp Leu His Gln Leu Tyr Ile Asn Asp Ala Glu Ser Ala  
 530 535 540  
 Gln Val Ile Asp Met Ala Leu Cys Leu Glu Gly Ser Ile Arg Asn Thr  
 545 550 555 560  
 Gly Val His Ala Ala Gly Val Ile Ile Cys Gly Asp Gln Leu Thr Asn  
 565 570 575  
 His Ile Pro Ile Cys Ile Ser Lys Asp Ser Thr Met Ile Thr Thr Gln  
 580 585 590  
 Tyr Ser Met Lys Pro Val Glu Ser Val Gly Met Leu Lys Val Asp Leu  
 595 600 605  
 Leu Gly Leu Lys Thr Leu Thr Ser Ile Asn Ile Ala Met Ser Ala Ile  
 610 615 620  
 Glu Lys Lys Thr Gly Gln Ser Leu Ala Met Ala Thr Leu Pro Leu Asp  
 625 630 635 640  
 Asp Ala Thr Thr Phe Ser Leu Leu His Gln Gly Lys Thr Met Gly Ile  
 645 650 655  
 Phe Gln Met Glu Ser Lys Gly Met Gln Glu Leu Ala Lys Asn Leu Arg  
 660 665 670  
 Pro Asp Leu Phe Glu Glu Ile Ile Ala Met Gly Ala Leu Tyr Arg Pro  
 675 680 685  
 Gly Pro Met Asp Met Ile Pro Ser Phe Ile Asn Arg Lys His Gly Lys  
 690 695 700  
 Glu Ile Ile Glu Tyr Asp His Pro Leu Met Glu Ser Ile Leu Lys Glu  
 705 710 715 720  
 Thr Tyr Gly Ile Met Val Tyr Gln Glu Gln Val Met Gln Ile Ala Gly  
 725 730 735  
 Ala Leu Ala Ser Tyr Ser Leu Gly Glu Gly Asp Val Leu Arg Arg Ala  
 740 745 750

Met Gly Lys Lys Asp Phe Gln Gln Met Glu Gln Glu Arg Glu Lys Phe  
 755 760 765  
 Cys Lys Arg Ala Cys Asn Asn Gly Ile Asp Pro Glu Leu Ala Thr Val  
 770 775 780  
 Ile Phe Asp Lys Met Glu Lys Phe Ala Ala Tyr Gly Phe Asn Lys Ser  
 785 790 795 800  
 His Ala Ala Ala Tyr Gly Leu Ile Thr Tyr Thr Thr Ala Tyr Leu Lys  
 805 810 815  
 Ala Asn Tyr Pro Lys Glu Trp Leu Ala Ala Leu Leu Thr Cys Asp Ser  
 820 825 830  
 Asp Asp Ile Glu Lys Ile Gly Lys Leu Ile Arg Glu Ala Gln Ser Met  
 835 840 845  
 Gly Ile Pro Ile Leu Pro Pro His Ile Asn Val Ser Ser Asn His Phe  
 850 855 860  
 Val Ala Thr Asp Glu Gly Ile Arg Phe Ala Met Gly Ala Ile Lys Gly  
 865 870 875 880  
 Ile Gly Arg Gly Leu Ile Glu Ser Ile Val Glu Glu Arg Asp His His  
 885 890 895  
 Gly Pro Tyr Glu Ser Ile Arg Asp Phe Ile Gln Arg Ser Asp Leu Lys  
 900 905 910  
 Lys Val Ser Lys Lys Ser Ile Glu Ser Leu Ile Asp Ala Gly Cys Phe  
 915 920 925  
 Asp Cys Phe Asp Ser Asn Arg Asp Leu Leu Leu Ala Ser Val Glu Pro  
 930 935 940  
 Leu Tyr Glu Ala Ile Ala Lys Asp Lys Lys Glu Ala Ala Ser Gly Val  
 945 950 955 960  
 Met Thr Phe Phe Thr Leu Gly Ala Met Asp Arg Lys Asn Glu Val Pro  
 965 970 975  
 Ile Cys Leu Pro Lys Asp Ile Pro Thr Arg Ser Lys Lys Glu Leu Leu  
 980 985 990  
 Lys Lys Glu Lys Glu Leu Leu Gly Ile Tyr Leu Thr Glu His Pro Met  
 995 1000 1005  
 Asp Thr Val Arg Asp His Leu Ser Arg Leu Ser Val Val Leu Ala Gly  
 1010 1015 1020  
 Glu Phe Glu Asn Leu Pro His Gly Ser Val Val Arg Thr Val Phe Ile  
 1025 1030 1035 1040  
 Ile Asp Lys Val Thr Thr Lys Ile Ser Ser Lys Ala Gln Lys Lys Phe  
 1045 1050 1055  
 Ala Val Leu Arg Val Ser Asp Gly Ile Asp Ser Tyr Glu Leu Pro Ile  
 1060 1065 1070  
 Trp Pro Asp Met Tyr Glu Glu Gln Gln Glu Leu Leu Glu Glu Asp Arg  
 1075 1080 1085  
 Leu Ile Tyr Ala Ile Leu Val Leu Asp Lys Arg Ser Asp Ser Leu Arg  
 1090 1095 1100  
 Ile Ser Cys Arg Trp Met Lys Asp Leu Ser Ile Val Asn Glu Asn Ile  
 1105 1110 1115 1120  
 Ile Tyr Glu Cys Asp Gln Ala Phe Asp Arg Ile Lys Asn Gln Val Gln  
 1125 1130 1135  
 Lys Met Ser Phe Thr Met Ser Thr Ser Gly Lys Glu Thr Lys Ala Lys  
 1140 1145 1150  
 Gly Asn Lys Pro Asn Glu Asn Gly His Thr Gln Ala Leu Ala Pro Val  
 1155 1160 1165  
 Thr Leu Ser Leu Asp Leu Asn Glu Leu Arg His Ser His Leu Cys Ile  
 1170 1175 1180  
 Leu Lys Lys Ile Val Gln Lys His Pro Gly Ser Arg Thr Leu Val Leu  
 1185 1190 1195 1200  
 Val Phe Thr Gln Asp Asn Glu Arg Val Ala Ser Met Ser Pro Asp Asp  
 1205 1210 1215  
 Ala Tyr Phe Val Cys Glu Asp Ile Glu Glu Leu Arg Gln Glu Leu Val  
 1220 1225 1230  
 Thr Ala Asp Leu Pro Val Arg Val Ile Thr Val  
 1235 1240  
 <210>705  
 <211>307

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;705

Asn Ile Ser Leu Leu Cys Lys Ile Gln Lys Arg Tyr Phe Met Lys Lys  
 1 5 10 15  
 Leu Ile Leu Tyr Phe Ala Ala Phe Val Ala Ser Leu Phe Cys Gly Val  
 20 25 30  
 Phe Leu Trp Asp Arg Val Pro Cys Ala Gln Lys Ile Met Arg Leu Ala  
 35 40 45  
 Ala Asp His Ser Ser Glu Val Phe Ser Lys Ser Cys Arg Phe Val Arg  
 50 55 60  
 Lys Ile Ser Gly Phe Glu Leu Gln Val Phe Glu Arg His Val Ser  
 65 70 75 80  
 Pro Glu Gln Ala Leu Ala Leu Phe Pro Glu Tyr Arg Asp Gly Lys Ser  
 85 90 95  
 Phe Val Glu Leu Ala Phe Ile Pro His Thr Leu Met His Val Arg Phe  
 100 105 110  
 Ser Lys Glu Glu Pro Val Lys Lys His Ile Ile Ser Gln Glu Gly Glu  
 115 120 125  
 Ile Leu Trp Ser Leu Val Asn Gly Glu Met Val Leu His Thr Gly Thr  
 130 135 140  
 Trp Thr Cys Ser Lys Gly Phe Arg Glu Cys Leu Leu Leu His Ala Gly  
 145 150 155 160  
 Lys Gln Asp Met Arg Val Ile Gln Thr Leu Ala Thr Leu Gly Gly Thr  
 165 170 175  
 Thr Ser Arg Glu Ser Leu Ala Gln Ala Leu Ala Leu Lys Asn Ile Arg  
 180 185 190  
 Ala Glu Arg Val Ile Lys Glu Cys Gln Lys Lys Lys Leu Ile Phe Ala  
 195 200 205  
 Ser Gly Asn Gln Ile Gly Thr His Phe Gln Gln Phe Gln Pro Ile Arg  
 210 215 220  
 Gly Cys Thr Thr Thr Leu Asn Asn Asn Pro Val Trp Leu Gln Lys Pro  
 225 230 235 240  
 Arg His Ala Ala Val Phe Pro Ala Gln Tyr Ser Glu Asp Arg Val Arg  
 245 250 255  
 His Leu Val Lys Met Ile Phe Gly Asp Asn Phe Leu Ile Val Arg Ser  
 260 265 270  
 Ser Met Val Tyr Val Pro Val Tyr Lys Ile Ser Leu Val Ser Ala Asp  
 275 280 285  
 Asn Ser Val Arg Val Glu Tyr Ile Asn Ala Val Thr Gly Lys Ser Phe  
 290 295 300  
 Gln Asp Leu  
 305

&lt;210&gt;706

&lt;211&gt;171

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;706

Trp Arg Phe Val Val Val Ser Pro Arg Leu Ile Met Lys Phe Leu Leu  
 1 5 10 15  
 Tyr Val Pro Leu Leu Val Leu Val Ser Thr Gly Cys Asp Ala Lys  
 20 25 30  
 Pro Val Ser Phe Glu Pro Phe Ser Gly Lys Leu Ser Thr Gln Arg Phe  
 35 40 45  
 Glu Pro Gln His Ser Ala Glu Glu Tyr Phe Ser Gln Gly Gln Glu Phe  
 50 55 60  
 Leu Lys Lys Gly Asn Phe Arg Lys Ala Leu Leu Cys Phe Gly Ile Ile  
 65 70 75 80  
 Thr His His Phe Pro Arg Asp Ile Leu Arg Asn Gln Ala Gln Tyr Leu  
 85 90 95  
 Ile Gly Val Cys Tyr Phe Thr Gln Asp His Pro Asp Leu Ala Asp Lys  
 100 105 110  
 Ala Phe Ala Ser Tyr Leu Gln Leu Pro Asp Ala Glu Tyr Ser Glu Glu  
 115 120 125

Leu Phe Gln Met Lys Tyr Ala Ile Ala Gln Arg Phe Ala Gln Gly Lys  
 130 135 140  
 Arg Lys Arg Ile Cys Arg Leu Glu Gly Phe Pro Lys Leu Met Asn Ala  
 145 150 155 160  
 Asp Glu Asp Ala Tyr Ala Phe Met Thr Arg Phe  
 165 170

&lt;210&gt;707

&lt;211&gt;167

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;707

Arg Cys Val Arg Ile Tyr Asp Glu Ile Leu Thr Ala Phe Pro Ser Lys  
 1 5 10 15  
 Asp Leu Gly Ala Gln Ala Leu Tyr Ser Lys Ala Ala Leu Leu Ile Val  
 20 25 30  
 Lys Asn Asp Leu Thr Glu Ala Thr Lys Thr Leu Lys Lys Leu Thr Leu  
 35 40 45  
 Gln Phe Pro Leu His Ile Leu Ser Ser Glu Ala Phe Val Arg Leu Ser  
 50 55 60  
 Glu Ile Tyr Leu Gln Gln Ala Lys Lys Glu Pro His Asn Leu Gln Tyr  
 65 70 75 80  
 Leu His Phe Ala Lys Leu Asn Glu Glu Ala Met Lys Lys Gln His Pro  
 85 90 95  
 Asn His Pro Leu Asn Glu Val Val Ser Ala Asn Val Gly Ala Met Arg  
 100 105 110  
 Glu His Tyr Ala Arg Gly Leu Tyr Ala Thr Gly Arg Phe Tyr Glu Lys  
 115 120 125  
 Lys Lys Lys Ala Glu Ala Ala Asn Ile Tyr Tyr Arg Thr Ala Ile Thr  
 130 135 140  
 Asn Tyr Pro Asp Thr Leu Leu Val Ala Lys Cys Gln Lys Arg Leu Asp  
 145 150 155 160  
 Arg Ile Ser Lys His Thr Ser  
 165

&lt;210&gt;708

&lt;211&gt;212

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;708

Ile Glu Tyr Leu Ser Ile Leu Pro Lys Ile Glu Ile Asn Met Arg Leu  
 1 5 10 15  
 Phe Ser Leu Gly Thr Ile Tyr Leu Phe Phe Ser Leu Ala Leu Ser Ser  
 20 25 30  
 Cys Cys Gly Tyr Ser Ile Leu Asn Ser Pro Tyr His Leu Ser Ser Leu  
 35 40 45  
 Gly Lys Ser Leu Leu Gln Glu Arg Ile Phe Ile Ala Pro Ile Lys Glu  
 50 55 60  
 Asp Pro His Gly Gln Leu Cys Ser Ala Leu Thr Tyr Glu Leu Ser Lys  
 65 70 75 80  
 Arg Ser Phe Ala Ile Ser Gly Arg Ser Ser Cys Ala Gly Tyr Thr Leu  
 85 90 95  
 Lys Val Glu Leu Leu Asn Gly Ile Asp Lys Asn Ile Gly Phe Thr Tyr  
 100 105 110  
 Ala Pro Asn Lys Leu Gly Asp Lys Thr His Arg His Phe Ile Val Ser  
 115 120 125  
 Asn Glu Gly Arg Leu Ser Leu Ser Ala Lys Val Gln Leu Ile Asn Asn  
 130 135 140  
 Asp Thr Gln Glu Val Leu Ile Asp Gln Cys Val Ala Arg Glu Ser Val  
 145 150 155 160  
 Asp Phe Asp Phe Glu Pro Asp Leu Gly Thr Ala Asn Ala His Glu Phe  
 165 170 175  
 Ala Leu Gly Gln Phe Glu Met His Ser Glu Ala Ile Lys Ser Ala Arg  
 180 185 190  
 Arg Ile Leu Ser Ile Arg Leu Ala Glu Thr Ile Ala Gln Gln Val Tyr  
 195 200 205

Tyr Asp Leu Phe

210

&lt;210&gt;709

&lt;211&gt;150

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;709

Leu Leu Asn Arg Tyr Thr Met Thr Phe Phe Glu Gly Glu Thr Val Phe  
 1 5 10 15

Pro Ala Val Leu Ser Glu Leu His Ser Met Leu Asp Leu Ile Lys Arg  
 20 25 30

Ala Gly Lys Gln Ser Lys Cys Pro Gln Glu Lys Leu Leu Lys Leu Glu  
 35 40 45

Leu Ala Cys Glu Glu Leu Leu Val Asn Ile Ile Ser Tyr Ala Tyr Gln  
 50 55 60

Gly Glu Asn Ser Pro Gly Thr Ile Ala Ile Ser Cys Ile Ser His Arg  
 65 70 75 80

Gly Asp Leu Glu Val Val Ile Lys Asp His Gly Pro Ser Phe Asn Pro  
 85 90 95

Leu Ala Val Ser Ile Asn Ile Gln Glu Asp Leu Pro Leu Glu Gln Arg  
 100 105 110

Lys Leu Gly Gly Leu Gly Ile Phe Leu Ala Lys Ser Ser Val Asp Glu  
 115 120 125

Phe Leu Tyr Ala Arg Glu Asp His Cys Asn Ile Val His Leu Lys Met  
 130 135 140

Leu Asn Gly Gln His Ser

145 150

&lt;210&gt;710

&lt;211&gt;152

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;710

Arg Ile Thr Ile Asn Gln Arg Lys Tyr Thr Met Ser Leu Asp Phe Phe  
 1 5 10 15

Glu Glu Phe Tyr His Gln Ser Ile Leu Asn Thr Gly Thr Ser Phe Pro  
 20 25 30

Glu Gly Tyr Leu Asn Ile Ala Glu Ile Leu Ser Tyr Pro His Cys Thr  
 35 40 45

Asp Ala Asn Thr Asp Phe Leu Cys Ser Gln Ser Asp Asn Asp Phe Ile  
 50 55 60

Ile Ala Glu Ser Lys Asp Lys Leu Thr Leu Phe Asn Ala Asp Phe Ala  
 65 70 75 80

Ile Trp Leu Val Pro Glu Leu Val Gln Gly Gln Ala Val Thr Arg Gly  
 85 90 95

Tyr Ile Ala Val Ser Gln Gly Glu Gly Asn Tyr Glu Pro Glu Met Ala  
 100 105 110

Phe Glu Ala Ser Gly Gln Tyr Asn Gln Ser Ser Leu Ile Leu Glu Ala  
 115 120 125

Leu Gln Leu Tyr Leu Lys Asp Ile Lys Asp Thr Glu Asn Ala Leu Arg  
 130 135 140

Ser Phe Arg Phe Asn Asn Asp His

145 150

&lt;210&gt;711

&lt;211&gt;436

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;711

Met Lys Arg Pro Phe Phe Thr Tyr Leu Cys Ile Ile Phe Tyr Gly Ser  
 1 5 10 15

Cys Ala Ser Leu Ser Leu His Ala Gly Leu Ser Phe Pro Glu Val Arg  
 20 25 30

Gly Ala Thr Ala Ala Val Val His Ala Asp Ser Gly Lys Val Phe Tyr  
 35 40 45

Asp Lys Asp Ile Asp Ala Val Ile Tyr Pro Ala Ser Met Thr Lys Ile



50 55 60  
 Ala Thr Ala Leu Phe Ile Leu Lys His Tyr Pro Thr Val Leu Asp Thr  
 65 70 75 80  
 Leu Ile Lys Val Lys Gln Asp Ala Ile Ala Ser Ile Thr Pro Gln Ala  
 85 90 95  
 Lys Lys Gln Ser Gly Tyr Arg Ser Pro Pro His Trp Leu Glu Thr Asp  
 100 105 110  
 Gly Ser Thr Ile Gln Leu His Leu Arg Glu Glu Leu Leu Gly Trp Asp  
 115 120 125  
 Leu Phe His Ala Leu Leu Val Cys Ser Ala Asn Asp Ala Ala Asn Val  
 130 135 140  
 Leu Ala Met Ala Cys Cys Gly Ser Val Glu Lys Phe Met Asp Lys Leu  
 145 150 155 160  
 Asn Phe Phe Leu Lys Glu Glu Ile Gly Cys Thr His Thr His Phe Asn  
 165 170 175  
 Asn Pro His Gly Leu His His Pro Asn His Tyr Thr Thr Thr Arg Asp  
 180 185 190  
 Leu Ile Ser Ile Met Arg Cys Ala Leu Lys Glu Pro Pro Phe Arg Gly  
 195 200 205  
 Val Ile Ser Thr Thr Ser Tyr Lys Ile Gly Ala Thr Asn Leu His Gly  
 210 215 220  
 Glu Arg Ile Leu Ser Pro Thr Asn Lys Leu Leu Leu Pro Gly Ser Thr  
 225 230 235 240  
 Tyr His Tyr Pro Pro Ala Leu Gly Gly Lys Thr Gly Thr Thr Lys Thr  
 245 250 255  
 Ala Gly Lys Asn Leu Ile Met Ala Ala Glu Lys Asn Asn Arg Leu Leu  
 260 265 270  
 Val Thr Ile Ala Thr Gly Tyr Ser Gly Pro Val Ser Asp Leu Tyr Gln  
 275 280 285  
 Asp Val Ile Ala Leu Cys Glu Thr Val Phe Asn Glu Pro Leu Leu Arg  
 290 295 300  
 Lys Glu Leu Val Pro Pro Ser Asp Cys Leu Gln Leu Glu Ile Ala Asn  
 305 310 315 320  
 Leu Gly Lys Leu Ser Cys Pro Leu Pro Glu Gly Leu Tyr Tyr Asp Phe  
 325 330 335  
 Tyr Ala Ser Glu Asp Arg Glu Pro Leu Ser Val Ser Phe Ile Ala His  
 340 345 350  
 Ala Asp Ala Phe Pro Ile Glu Gln Gly Asp Leu Leu Gly His Trp Val  
 355 360 365  
 Phe Tyr Asp Asp Glu Gly Lys Lys Ile Ser Ser Gln Pro Phe Tyr Ala  
 370 375 380  
 Pro Cys Arg Phe Glu Arg Thr Ile Lys Pro Trp Lys Leu Tyr Met Lys  
 385 390 395 400  
 Arg Val Phe Thr Ser Tyr Arg Thr Tyr Met Ser Ile Thr Met Leu Leu  
 405 410 415  
 Met Tyr Phe Arg Ile Arg Lys His Arg Lys Tyr Lys Asn Leu Lys His  
 420 425 430  
 Tyr Ser Lys Ile  
 435

&lt;210&gt;712

&lt;211&gt;371

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;712

Arg Gly Ile Leu Tyr Val Thr Met Val Pro Phe Arg Gln His His Ala  
 1 5 10 15  
 Tyr Gln Leu Leu Lys Gln Leu His Thr Ser Ala Ile Ser Glu Ala Asp  
 20 25 30  
 Arg Val Ser Tyr Tyr Phe Lys Gln Asn Arg Ser Leu Gly Ser Lys Asp  
 35 40 45  
 Arg Gln Trp Ile Gln Asn Ile Ile Phe Asn Ile Leu Arg His Arg Arg  
 50 55 60  
 Leu Leu Glu Thr Leu Ile Leu Asp Ser Gly Glu Gln Val Thr Pro Glu  
 65 70 75 80

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Pro | Leu | Ser | Met | Ile | Leu | Asp | Phe | Gln | Phe | Ser | Ile | Gly | Tyr | Tyr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Leu | Arg | Val | Leu | Glu | Leu | Ala | Ile | Arg | Asp | Gly | Thr | Arg | Ile | Leu | Ala |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Tyr | Asp | Arg | Lys | Arg | Leu | Leu | Leu | Asp | Ala | Trp | Pro | Val | Asn | Asp | Pro |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Leu | Pro | Thr | Asn | Tyr | Asp | Thr | Ser | Val | Ser | Thr | Ile | Arg | Gln | Val | Ile |
| 50  |     |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| His | Glu | Leu | Phe | Ser | Trp | Ser | Ala | Ile | Ser | Tyr | Ser | Ile | Ser | Ser | Arg |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Leu | Leu | Ala | Ile | Ile | Glu | Leu | Arg | Leu | His | Glu | Glu | Lys | Pro | Gln | Thr |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Gly | Trp | Leu | Tyr | Arg | Leu | Phe | Phe | Pro | Ser | Lys | Tyr | His | Ile | Lys | Lys |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ala | Ile | Val | Asp | Lys | Leu | Cys | Met | Phe | Lys | Ser | Leu | Ile | Leu | Phe | Glu |
|     |     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ser | Lys | Arg | Pro | Val | Asp | Lys | Ile | Val | Gln | Ala | Ala | Asn | Lys | Val | Phe |
|     |     |     | 130 |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ser | Lys | Gly | Lys | Ser | Asn | Phe | Ser | Ser | Trp | Glu | Asp | Phe | Thr | His | Glu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Val | Thr | Val | Ser | Glu | Val | Gln | Thr | Pro | Leu | Ala | Gly | Glu | Val | Gln | Arg |

165 170 175  
 Arg Leu Ala Ala Asp Ala Ser Leu Gln Met Ile Ile Glu Ala Leu Thr  
 180 185 190  
 Thr Leu Leu Glu Gly His Thr Ala Tyr Leu Pro Leu Ser Leu Glu Leu  
 195 200 205  
 Leu Asn Gln Phe Ile Gly Glu Lys Ala Gln Pro Leu Lys Thr Leu Ser  
 210 215 220  
 Glu Lys Ser Tyr Val Leu Leu Arg Glu Leu Ile Gln Leu Phe Ser Leu  
 225 230 235 240  
 Ser Ala Glu Asp Phe Gln Thr Ile Ile Met Ser Ile Ile Ser Asp Ser  
 245 250 255  
 Leu Ser Glu Val Leu Ala Asn Ser Leu Ile Gly Asn Gln Pro Leu Thr  
 260 265 270  
 Phe His Gly Lys Thr Phe Val Gly Leu Trp Gln Glu Thr Ala Leu Ala  
 275 280 285  
 Ser Pro Glu Asp Ser Lys Leu Ala Leu Gly Phe Leu Ala Glu Val Leu  
 290 295 300  
 Arg Lys Val Ile Val Glu Lys Lys Leu His Val Ser Lys Ser Asp Asn  
 305 310 315 320  
 Thr Thr Pro Glu Glu Val Gly Asn Ile Tyr Ser Ile Arg Asp Gln Asn  
 325 330 335  
 Pro Ala Leu Trp Asp Lys Met Ile Thr Met Leu Leu Met Arg Trp Leu  
 340 345 350  
 Leu Asp Tyr Asp Arg Asp Ile Gly Ile Ala Leu Arg Lys Ala Ala Glu  
 355 360 365  
 Tyr Tyr Asn Pro His Pro Ser Phe Trp Arg Gln Phe Leu Arg Leu Trp  
 370 375 380  
 Gln Arg Arg Pro

385

<210>714

<211>82

<212>PRT

<213>Chlamydia pneumoniae

<400>714

Phe Thr Ser Pro Tyr Leu Gly Ala Gly Gln Cys Val Ser Val Val Asp  
 1 5 10 15  
 Asn Leu Lys Thr Tyr Asp Leu Gly Arg Asn Tyr Thr Gln Val Leu Ala  
 20 25 30  
 Cys Ala Ser Gln Ile Asp Glu Phe Ala Asp Lys Gly Glu Asn Glu Ala  
 35 40 45  
 Leu Val Met Lys Asp Ile Leu Tyr Leu Val Arg Gln Asp Arg Ser Lys  
 50 55 60  
 Glu Leu Gly Asp Phe Leu Met Met Trp Ser Glu Glu His Ala Ser Glu  
 65 70 75 80  
 Val Asn

<210>715

<211>264

<212>PRT

<213>Chlamydia pneumoniae

<400>715

Ser Met Gly Thr Pro Ile Ser Gly Asn Asp Gly Asp Arg Asn Thr Ile  
 1 5 10 15  
 Ser Asp Pro Leu Glu Glu Ser Ala Ala Glu Glu Gly Asp Ser Asp Leu  
 20 25 30  
 Glu Asp Arg Val Ser Glu Ser Ala Thr Gln Val Ile Glu Thr Ile Ala  
 35 40 45  
 Asp Thr Gly Ile Pro Glu Ala Thr Pro Ser Glu Gly Thr Asn Ser Asp  
 50 55 60  
 Leu Asn Ser Asp Leu Val Asp Arg Val Glu Tyr Glu Ala Arg Gly Ser  
 65 70 75 80  
 Leu Leu Thr Thr Met Leu Ala Arg Ile Arg Lys Ala Val Ser Gln Ile  
 85 90 95  
 Trp Met His Val Lys Thr Lys Arg His Pro Lys Glu Gln Gly Val Arg

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      100      105      110
Ser Leu Gly Asp Ile Pro Cys Asp Leu Leu Lys Ala Thr Arg Leu Pro
      115      120      125
Lys Glu Thr Ala Glu Pro Pro Tyr Phe Tyr Ala Leu Glu Thr Ala Leu
      130      135      140
Ala Ser Cys Arg Ser Phe Phe His Val Phe Leu Arg Leu Phe Thr
      145      150      155      160
Leu Leu Arg Arg Gln His Pro Glu Ala Pro Leu Asp Leu Cys Gly Thr
      165      170      175
Asp Pro Ile Ser Pro Glu Ala Ala Val Ala Phe Ala Leu Ile Leu Arg
      180      185      190
Ser Cys Cys Lys Trp Val Ala Thr Asp Ala Val Gln Glu Gly Leu Pro
      195      200      205
Leu Glu Val Ile Glu Glu Ala Gly Met Tyr Asn Ala Phe Ser Leu Glu
      210      215      220
Ala Thr Thr Thr Val Glu Glu Val Ser Lys Arg Leu Ser Glu Leu Leu
      225      230      235      240
Tyr Ser Asp Lys Arg Ile Asp Gly Leu Ala Asn Val Arg Gly Ile Thr
      245      250      255
Lys Ile Asn Leu Pro Leu Leu Ile
      260

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&lt;210&gt;716

&lt;211&gt;385

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;716

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Arg Ile Ala Met Gly Ile Asn Pro Ser Gly Asn Arg Ser Pro Asp Asp
      1      5      10      15
Val Trp Val Arg Gly Ala Gln Gly Asp Ser Ser Ser Thr Gln Gly Thr
      20      25      30
Gly Ala Thr Asn Ser Asn Leu Gly Ala His Asn Val Thr Thr Ser Thr
      35      40      45
Ser Gln Pro Gln Val Ala Ser Lys Ala Lys Gln Leu Trp Gln Thr Val
      50      55      60
Arg Glu Phe Phe Leu Gly Lys Lys Ser Pro Asp Ser Ser Gln Gly Ala
      65      70      75      80
Ser Gly Pro Ala Met Gln Ser Pro Ser Gly Pro Thr Ile Arg Pro Thr
      85      90      95
Arg Pro Ala Pro Pro Pro Pro Thr Thr Gly Gly Ala Asn Ala Lys Arg
      100      105      110
Pro Ala Thr His Gly Lys Gly Arg Ala Pro Gln Pro Pro Thr Ala Gly
      115      120      125
Ser Ser Ser Gly Ser Glu Gln Pro Thr Ala Met Ser Ser Glu Val Ala
      130      135      140
Lys Leu Val Ser Glu Leu Lys Asp Ala Val His Ser His Ala Glu Ser
      145      150      155      160
Gln Lys Val Leu Lys Lys Val Ser Gln Glu Leu Gln Thr Lys Trp Thr
      165      170      175
Asp Trp Glu Asn Asn Arg Gly Pro Asp Tyr Leu Leu His Gly Tyr Arg
      180      185      190
Val Ile Ala Arg Ala Leu Gln Gln Thr Tyr Thr Glu Gln Ser Met Leu
      195      200      205
Ile Glu Gly Thr Ser Ser Thr Gly Pro Val Pro Gln Ala Val Thr Val
      210      215      220
Ala Lys Asp Ala Val Thr Gln Thr Val Arg Gly Ala Ile Lys Asn Leu
      225      230      235      240
Glu Asn Pro Lys Pro Gly Asn Asp Pro Asp Gly Val Leu Met Gln Val
      245      250      255
Val Ile Ser Leu Gly Ile Glu Gly Pro Thr Leu Asp Pro Gly Glu Ser
      260      265      270
Ile Gln Asn Phe Leu Glu Thr Arg Val Ser Asp Phe Gly Gly Asp Asp
      275      280      285
Ser Asp Ile Asp Tyr Thr Ser Asp Ile Ala Arg Leu Gly Ser Ala Leu
      290      295      300

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Asp Arg Val Arg Glu Asn His Pro Asn Glu Met Pro Arg Ile Trp Ile  
 305 310 315 320  
 Ala Leu Ala Arg Glu Leu Gly Ala Ala Val His Ser His Ala Thr Ser  
 325 330 335  
 Val Arg Ile Ala Asn Ala Gly Lys Asn His Thr Arg Asp Val Val Arg  
 340 345 350  
 Met Ala Asn Glu Ser Ser Arg Leu Leu Gln Gly Met Lys Val Leu Ser  
 355 360 365  
 Val Gly Ala Trp Ala Asn Thr Met Thr Val Leu Ile Gly Asp Leu Phe  
 370 375 380

Glu

385

&lt;210&gt;717

&lt;211&gt;216

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;717

Lys Ile Ile Met Ser Val Asn Pro Ser Gly Asn Ser Lys Asn Asp Leu  
 1 5 10 15  
 Trp Ile Thr Gly Ala His Asp Gln His Pro Asp Val Lys Glu Ser Gly  
 20 25 30  
 Val Thr Ser Ala Asn Leu Gly Ser His Arg Val Thr Ala Ser Gly Gly  
 35 40 45  
 Arg Gln Gly Leu Leu Ala Arg Ile Lys Glu Ala Val Thr Gly Phe Phe  
 50 55 60  
 Ser Arg Met Ser Phe Phe Arg Ser Gly Ala Pro Arg Gly Ser Gln Gln  
 65 70 75 80  
 Pro Ser Ala Pro Ser Ala Asp Thr Val Arg Ser Pro Leu Pro Gly Gly  
 85 90 95  
 Asp Ala Arg Ala Thr Glu Gly Ala Gly Arg Asn Leu Ile Lys Lys Gly  
 100 105 110  
 Tyr Gln Pro Gly Met Lys Val Thr Ile Pro Gln Val Pro Gly Gly Gly  
 115 120 125  
 Ala Gln Arg Ser Ser Gly Ser Thr Thr Leu Lys Pro Thr Arg Pro Ala  
 130 135 140  
 Pro Pro Pro Pro Lys Thr Gly Gly Thr Asn Ala Lys Arg Pro Ala Thr  
 145 150 155 160  
 His Gly Lys Gly Pro Ala Pro Gln Pro Pro Lys Thr Gly Gly Thr Asn  
 165 170 175  
 Ala Lys Arg Ala Ala Thr His Gly Lys Gly Pro Ala Pro Gln Pro Pro  
 180 185 190  
 Lys Gly Ile Leu Lys Gln Pro Gly Gln Ser Gly Thr Ser Gly Lys Lys  
 195 200 205  
 Arg Val Ser Trp Ser Asp Glu Asp  
 210 215

&lt;210&gt;718

&lt;211&gt;404

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;718

Gly Tyr Met Asp Lys Leu Thr Val Gln Asp Leu Ser Pro Glu Glu Lys  
 1 5 10 15  
 Lys Val Leu Val Arg Val Asp Phe Asn Val Pro Met Gln Asp Gly Lys  
 20 25 30  
 Ile Leu Asp Asp Ile Arg Ile Arg Ser Ala Met Pro Thr Ile Asn Tyr  
 35 40 45  
 Leu Leu Lys Lys His Ala Ala Val Ile Leu Met Ser His Leu Gly Arg  
 50 55 60  
 Pro Lys Gly Gln Gly Phe Gln Glu Glu Tyr Ser Leu Gln Pro Val Val  
 65 70 75 80  
 Asp Val Leu Glu Gly Tyr Leu Gly His His Val Pro Leu Ala Pro Asp  
 85 90 95  
 Cys Val Gly Glu Val Ala Arg Gln Ala Val Ala Gln Leu Ser Pro Gly  
 100 105 110

Arg Val Leu Leu Leu Glu Asn Leu Arg Phe His Ile Gly Glu Glu His  
 115 120 125  
 Pro Glu Lys Asp Pro Thr Phe Ala Ala Glu Leu Ser Ser Tyr Gly Asp  
 130 135 140  
 Phe Tyr Val Asn Asp Ala Phe Gly Thr Ser His Arg Lys His Ala Ser  
 145 150 155 160  
 Val Tyr Val Val Pro Gln Ala Phe Pro Gly Arg Ala Ala Ala Gly Leu  
 165 170 175  
 Leu Met Glu Lys Glu Leu Glu Phe Leu Gly Arg His Leu Leu Thr Ser  
 180 185 190  
 Pro Lys Arg Pro Phe Thr Ala Ile Leu Gly Gly Ala Lys Ile Ser Ser  
 195 200 205  
 Lys Ile Gly Val Ile Glu Ala Leu Leu Asn Gln Val Asp Tyr Leu Leu  
 210 215 220  
 Leu Ala Gly Gly Met Gly Phe Thr Phe Leu Gln Ala Leu Gly Lys Ser  
 225 230 235 240  
 Leu Gly Asn Ser Leu Val Glu Lys Ser Ala Leu Asp Leu Ala Arg Asn  
 245 250 255  
 Val Leu Lys Ile Ala Lys Ser Arg Asn Val Thr Ile Val Leu Pro Ser  
 260 265 270  
 Asp Val Lys Ala Ala Glu Asn Leu Gln Ser Lys Glu Tyr Ser Val Ile  
 275 280 285  
 Ser Ile Asp Gln Gly Ile Pro Pro His Leu Gln Gly Phe Asp Ile Gly  
 290 295 300  
 Pro Arg Thr Thr Glu Glu Phe Ile Arg Ile Ile Asn Gln Ser Ala Thr  
 305 310 315 320  
 Val Phe Trp Asn Gly Pro Val Gly Val Tyr Glu Val Pro Pro Phe Asp  
 325 330 335  
 Ser Gly Ser Ile Ala Ile Ala Asn Ala Leu Gly Asn His Pro Ser Ala  
 340 345 350  
 Val Thr Val Val Gly Gly Gly Asp Ala Ala Ala Val Val Ala Leu Ala  
 355 360 365  
 Gly Cys Ser Thr Lys Val Ser His Val Ser Thr Gly Gly Gly Ala Ser  
 370 375 380  
 Leu Glu Phe Leu Glu Gln Gly Phe Leu Pro Gly Thr Glu Val Leu Ser  
 385 390 395 400  
 Pro Ser Lys Ser

&lt;210&gt;719

&lt;211&gt;121

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;719

Trp Asn Lys Ala Leu Lys Ala Lys Lys Lys Ser Met Asp Asn Lys Ala  
 1 5 10 15  
 Pro Ala Gly Ser Val Ile Asn Gln Glu Ser Thr Ile Ser Leu Ile Met  
 20 25 30  
 Phe Lys Leu Met Ala Arg Ile Pro Arg Ala Lys Pro Ile Pro Lys Thr  
 35 40 45  
 Ala Pro Thr Thr Thr Cys Val Val Asp Ile Gly Ser Pro Lys Ile Glu  
 50 55 60  
 Ala Lys Ala Ile Val Asn Ala Glu Pro Ile Pro Thr Glu Asn Pro Arg  
 65 70 75 80  
 Asp Gly Val Asn Ser Val Ile Leu Gln Pro Thr Val Ser Ile Thr Arg  
 85 90 95  
 His Pro Gln Ile Ala Arg Pro Met Thr Lys Pro Met Pro Pro Asn Ala  
 100 105 110  
 Met Ser Leu Ile Asn Val Tyr Asp Val  
 115 120

&lt;210&gt;720

&lt;211&gt;428

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;720

Tyr Ser Met Leu Pro Leu Ile Ile Phe Val Leu Leu Cys Gly Phe Tyr  
 1 5 10 15  
 Thr Ser Trp Asn Ile Gly Ala Asn Asp Val Ala Asn Ala Val Gly Pro  
 20 25 30  
 Ser Val Gly Ser Gly Val Leu Thr Leu Arg Gln Ala Val Val Ile Ala  
 35 40 45  
 Ala Ile Phe Glu Phe Phe Gly Ala Leu Leu Leu Gly Asp Arg Val Ala  
 50 55 60  
 Gly Thr Ile Glu Ser Ser Ile Val Ser Val Thr Asn Pro Met Ile Ala  
 65 70 75 80  
 Ser Gly Asp Tyr Met Tyr Gly Met Thr Ala Ala Leu Leu Ala Thr Gly  
 85 90 95  
 Val Trp Leu Gln Leu Ala Ser Phe Phe Gly Trp Pro Val Ser Thr Thr  
 100 105 110  
 His Ser Ile Val Gly Ala Val Ile Gly Phe Gly Leu Val Leu Gly Lys  
 115 120 125  
 Gly Thr Ile Ile Tyr Trp Asn Ser Val Gly Ile Ile Leu Ile Ser Trp  
 130 135 140  
 Ile Leu Ser Pro Phe Met Gly Gly Cys Val Ala Tyr Leu Ile Phe Ser  
 145 150 155 160  
 Phe Ile Arg Arg His Ile Phe Tyr Lys Asn Asp Pro Val Leu Ala Met  
 165 170 175  
 Val Arg Val Ala Pro Phe Leu Ala Ala Leu Val Ile Met Thr Leu Gly  
 180 185 190  
 Thr Val Met Ile Ser Gly Gly Val Ile Leu Lys Val Ser Ser Thr Pro  
 195 200 205  
 Trp Ala Val Ser Gly Val Leu Val Cys Gly Leu Leu Ser Tyr Ile Ile  
 210 215 220  
 Thr Phe Tyr Tyr Val His Thr Lys His Cys Ser Tyr Ile Ser Asp Thr  
 225 230 235 240  
 Pro Lys Lys Gly Ser Leu Thr Tyr Arg Leu Lys Glu Arg Gly Gly Asn  
 245 250 255  
 Tyr Gly Arg Lys Tyr Leu Val Val Glu Arg Ile Phe Ala Tyr Leu Gln  
 260 265 270  
 Ile Ile Val Ala Cys Phe Met Ala Phe Ala His Gly Ser Asn Asp Val  
 275 280 285  
 Ala Asn Ala Ile Ala Pro Val Ala Gly Val Leu Arg Gln Ala Tyr Pro  
 290 295 300  
 Ala Ser Tyr Thr Ser Tyr Thr Leu Ile Arg Leu Met Ala Phe Gly Gly  
 305 310 315 320  
 Ile Gly Leu Val Ile Gly Leu Ala Ile Trp Gly Trp Arg Val Ile Glu  
 325 330 335  
 Thr Val Gly Cys Lys Ile Thr Glu Leu Thr Pro Ser Arg Gly Phe Ser  
 340 345 350  
 Val Gly Met Gly Ser Ala Leu Thr Ile Ala Leu Ala Ser Ile Leu Gly  
 355 360 365  
 Leu Pro Ile Ser Thr Thr His Val Val Val Gly Ala Val Leu Gly Ile  
 370 375 380  
 Gly Leu Ala Arg Gly Ile Arg Ala Ile Asn Leu Asn Ile Ile Lys Asp  
 385 390 395 400  
 Ile Val Leu Ser Trp Phe Ile Thr Leu Pro Ala Gly Ala Leu Leu Ser  
 405 410 415  
 Ile Leu Phe Phe Phe Ala Leu Arg Ala Leu Phe His  
 420 425

&lt;210&gt;721

&lt;211&gt;248

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;721

Asn Gly Ile Arg Ser His Lys Ser Phe Thr Arg Ser Phe Arg Gln Val  
 1 5 10 15  
 Ile Ile Ala Lys Lys Ala Ile Leu Met Gln Thr Leu Ala Arg Leu Phe  
 20 25 30  
 Gly Gln Ser Pro Phe Ala Pro Leu Gln Ala His Leu Glu Met Val Val

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      35      40      45
Ser Cys Val Glu Tyr Met Leu Pro Ile Phe Thr Ala Leu Arg Asp Gly
      50      55      60
Arg Tyr Glu Glu Leu Leu Glu Met Ala Lys Leu Val Ser Asp Lys Glu
      65      70      75      80
Tyr Gln Ala Asp Cys Ile Lys Asn Asp Met Arg Asn His Leu Pro Ala
      85      90      95
Gly Leu Phe Met Pro Ile Ser Arg Ala Gly Ile Leu Glu Ile Ile Ser
      100      105      110
Ile Gln Asp Ser Ile Ala Asp Thr Ala Glu Asp Val Ala Ile Leu Leu
      115      120      125
Thr Ile Arg Arg Leu Asn Phe Tyr Pro Ser Met Glu Thr Leu Phe Phe
      130      135      140
Arg Phe Leu Glu Lys Asn Leu Glu Ala Phe Glu Leu Thr Met Thr Leu
      145      150      155      160
Leu His Glu Phe Asn Gln Leu Leu Glu Ser Ser Phe Gly Gly Arg Lys
      165      170      175
Ala Asp Lys Ala Arg Leu Leu Val Gly Arg Val Ala Lys Ser Glu His
      180      185      190
Glu Ser Asp Val Leu Gln Arg Glu Leu Met Gln Ile Phe Phe Ser Asp
      195      200      205
Asp Phe Ile Ile Pro Glu Lys Glu Phe Tyr Leu Trp Leu Gln Val Ile
      210      215      220
Arg Arg Thr Ala Gly Ile Ser Asp Ser Ser Glu Lys Leu Ala His Arg
      225      230      235      240
Ile Asn Met Thr Leu Glu Glu Lys
      245

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&lt;210&gt;722

&lt;211&gt;161

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;722

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Lys Ile Ile Glu Ile Ser Val Pro Ile Ile Phe Phe Cys Ile Glu Arg
      1      5      10      15
Glu Ala Val Ser Lys Leu Trp Pro Trp Lys Leu Thr Trp Pro Glu Thr
      20      25      30
Glu Asn Gly Gly Gln Gly Ser Asn Arg Arg Ile Ala Cys Ala Glu Thr
      35      40      45
Asp Phe Pro Asp Pro Asp Ser Pro Met Ile Ala Lys Val Cys Pro Ser
      50      55      60
Leu Ile Val Asn Asp Lys Asp Trp Thr Met Gly Tyr Cys Trp Arg Cys
      65      70      75      80
Phe Ala Lys Val Met Asp Arg Ser Ser Ile Cys Lys Met Gly Leu Glu
      85      90      95
Ala Ile Ser Arg Leu Gln Asp Arg Leu Gly Lys Leu Leu Leu Arg Lys
      100      105      110
Arg Leu Phe Leu Cys Lys Pro Leu Leu Val Tyr Leu Ala Asn Leu His
      115      120      125
Leu Leu Leu Tyr Lys Leu Ile Trp Lys Trp Trp Ser Leu Val Trp Asn
      130      135      140
Thr Cys Phe Leu Tyr Ser Leu Leu Ser Glu Met Glu Asp Met Lys Asn
      145      150      155      160
Tyr

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&lt;210&gt;723

&lt;211&gt;344

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;723

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Leu His Lys Asn Ser Leu Phe Arg Asn Asn Asn Leu Pro Lys Arg Ser
      1      5      10      15
Cys Lys Arg Leu Met Ala Ser Asn Pro Ile Leu Gln Ile Glu Asp Leu
      20      25      30
Ser Ile Thr Leu Ala Lys Gln Arg Gln Gln Tyr Pro Ile Val Gln Ser

```



35 40 45  
 Leu Ser Phe Thr Ile Asn Glu Gly Gln Thr Leu Ala Ile Ile Gly Glu  
 50 55 60  
 Ser Gly Ser Gly Lys Ser Val Ser Ala His Ala Ile Leu Arg Leu Leu  
 65 70 75 80  
 Pro Cys Pro Pro Phe Ser Val Ser Gly Gln Val Asn Phe Gln Gly His  
 85 90 95  
 Asn Leu Leu Thr Ala Ser Arg Ser Ile Gln Lys Lys Ile Ile Gly Thr  
 100 105 110  
 Glu Ile Ser Met Ile Phe Gln Asn Pro Gln Ala Ser Leu Asn Pro Val  
 115 120 125  
 Phe Thr Ile Glu Gln Gln Phe Arg Glu Ile Ile His Thr His Leu Ala  
 130 135 140  
 Leu Thr Ala Glu Val Ala Lys Glu Lys Met Leu Tyr Ala Leu Glu Glu  
 145 150 155 160  
 Thr Gly Phe His Asp Pro Arg Leu Cys Leu Asn Leu Tyr Pro His Gln  
 165 170 175  
 Leu Ser Gly Gly Met Leu Gln Arg Ile Cys Ile Ala Met Ala Leu Leu  
 180 185 190  
 Cys Ser Pro Lys Leu Leu Ile Ala Asp Glu Pro Thr Thr Ala Leu Asp  
 195 200 205  
 Val Ser Val Gln Tyr Gln Ile Leu Gln Leu Leu Lys Thr Leu Gln Lys  
 210 215 220  
 Lys Thr Gly Met Ser Leu Leu Ile Ile Thr His Asn Met Gly Val Val  
 225 230 235 240  
 Ala Glu Thr Ala Asp Asp Val Leu Val Leu Tyr Ala Gly Arg Met Val  
 245 250 255  
 Glu Cys Ala Pro Ala Val Gln Met Phe His Asn Pro Ser His Pro Tyr  
 260 265 270  
 Thr Arg Asp Leu Leu Ala Ser Arg Pro Ser Leu Gln Pro Gln Gln Leu  
 275 280 285  
 Gly Ser Phe Asn Pro Ile Pro Gly Gln Pro Pro His Tyr Thr Ala Phe  
 290 295 300  
 Pro Ser Gly Cys Arg Tyr His Pro Arg Cys Ser Lys Ile Leu Asn Arg  
 305 310 315 320  
 Cys Ser Ala Glu Ala Pro Glu Ile Tyr Pro Val Arg Glu Gly His Lys  
 325 330 335  
 Val Arg Cys Trp Leu Tyr Asp Asp  
 340

&lt;210&gt;724

&lt;211&gt;324

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;724

Met Thr Thr Asn Phe Pro Gln Pro Leu Ile Gln Ala Thr Ser Leu Thr  
 1 5 10 15  
 Lys His Tyr Tyr Lys Arg Ser Phe Trp Phe Gln Gly Lys Thr Ile Ala  
 20 25 30  
 Ser Arg Pro Val Asp Asp Val Ser Phe Ser Leu Tyr Ser Arg Arg Ala  
 35 40 45  
 Val Gly Leu Ile Gly Glu Ser Gly Ser Gly Lys Ser Thr Leu Ala Leu  
 50 55 60  
 Ala Leu Ala Gly Leu Leu Pro Leu Thr Ser Gly Phe Leu Thr Phe Asn  
 65 70 75 80  
 Gly Thr Pro Ile Lys Leu His Ser Lys His Gly Arg His Gln Leu Arg  
 85 90 95  
 Ser Gln Val Arg Leu Val Phe Gln Asn Pro Gln Ala Ser Leu Asn Pro  
 100 105 110  
 Arg Lys Thr Ile Leu Asp Ser Leu Gly His Ser Leu Leu Tyr His Lys  
 115 120 125  
 Leu Val Pro Lys Glu Lys Val Leu Ala Thr Val Arg Glu Tyr Leu Glu  
 130 135 140  
 Leu Val Gly Leu Ser Glu Glu Tyr Phe Tyr Arg Tyr Pro His Gln Leu  
 145 150 155 160

Ser Gly Gly Gln Gln Gln Arg Val Ser Ile Ala Arg Ala Leu Leu Gly  
 165 170 175  
 Val Pro Gln Leu Ile Ile Cys Asp Glu Ile Val Ser Ala Leu Asp Leu  
 180 185 190  
 Ser Ile Gln Ala Gln Ile Leu Asn Met Leu Ala Glu Leu Gln Lys Lys  
 195 200 205  
 Leu Ser Leu Thr Tyr Leu Phe Ile Ser His Asp Leu Ala Val Val Arg  
 210 215 220  
 Ser Phe Cys Thr Glu Val Phe Ile Met Tyr Lys Gly Gln Ile Val Glu  
 225 230 235 240  
 Lys Gly Asn Thr Lys Arg Ile Phe Ser Asp Pro Gln His Pro Tyr Thr  
 245 250 255  
 Arg Met Leu Leu Asn Ala Gln Leu Pro Glu Thr Pro Asp Gln Arg Gln  
 260 265 270  
 Ser Lys Pro Ile Phe Gln Glu Tyr His Lys Asp Ser Glu Glu Ser Cys  
 275 280 285  
 Ser Thr Gly Cys Tyr Phe Tyr Asn Arg Cys Pro Gln Lys Gln Glu Ala  
 290 295 300  
 Cys Lys Ser Glu Ile Ile Pro Asn Gln Gly Asp Ala His His Thr Tyr  
 305 310 315 320  
 Arg Cys Ile His

&lt;210&gt;725

&lt;211&gt;143

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;725

Ala Tyr Cys Trp Arg Ala Arg Trp Arg Ala Met Gln Leu Ala Gly Ala  
 1 5 10 15  
 Thr Thr Ile Pro Val Ile Leu Lys His Val Ile Ala Asp Gly Thr Ala  
 20 25 30  
 Ala Glu Ala Thr Leu Ile Glu Asn Ile Gln Arg Val Asn Leu Asn Pro  
 35 40 45  
 Ile Glu Met Ala Glu Ala Phe Lys Arg Leu Ile His Val Phe Gly Leu  
 50 55 60  
 Thr Gln Asp Xaa Val Ala Tyr Lys Val Gly Lys Lys Arg Ser Thr Val  
 65 70 75 80  
 Ala Asn Tyr Leu Arg Leu Leu Ala Leu Ser Lys Thr Ile Gln Glu Ser  
 85 90 95  
 Leu Leu Gln Gly Gln Ile Thr Leu Gly His Ala Lys Val Ile Leu Thr  
 100 105 110  
 Leu Glu Asp Pro Ile Leu Arg Glu Lys Leu Asn Glu Ile Ile Ile Gln  
 115 120 125  
 Glu His Leu Ala Val Arg Glu Ala Glu Leu Ile Ala Asn Ser Leu  
 130 135 140

&lt;210&gt;726

&lt;211&gt;91

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;726

Glu Lys Ser Gly Asp Ile Val Thr Glu Glu Ile Ser Lys Asp Thr Ile  
 1 5 10 15  
 Ile Glu Val Ala Ile Asp Asp Ile Arg Val Ser Pro Phe Gln Pro Arg  
 20 25 30  
 Arg Val Phe Ser Asn Glu Glu Leu Gln Glu Leu Ile Ala Ser Ile Lys  
 35 40 45  
 Ala Val Gly Leu Ile His Pro Pro Val Val Arg Glu Ile Cys Thr Gly  
 50 55 60  
 Asp Arg Val Leu Tyr Tyr Glu Leu Ile Ala Gly Glu Pro Ala Gly Gly  
 65 70 75 80  
 Pro Cys Ser Ser Gln Glu Gln Leu Arg Tyr Leu  
 85 90

&lt;210&gt;727

&lt;211&gt;238

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;727

Arg Lys Ile His Lys Asn Leu Arg His Ala Tyr Arg Phe Ser Thr Pro  
 1 5 10 15  
 Asn Cys Arg Ser Phe Met Gln Lys Leu Val His Asn Ile Trp Lys Lys  
 20 25 30  
 Phe Tyr Ser Phe Ser Ser Ala Ile Ala Ile Cys Ile Val Leu Ala Ser  
 35 40 45  
 Phe Leu Ser Leu Lys Ile Val Ser Asn Thr Tyr Lys His Ser Gln Ala  
 50 55 60  
 Lys Arg Asn Ser Ile Leu Leu Thr Arg Ala Ala Glu Val Ala Val  
 65 70 75 80  
 Ser Gln Gly Phe Leu Pro Ser Lys Ser Ala Leu Ser Ser Leu Glu Gln  
 85 90 95  
 Ala Tyr His Leu Gly Gly Glu Ser Met Lys Pro Tyr Ala Gly Phe Leu  
 100 105 110  
 Ala Ser Cys Phe Tyr Ile His Asn Glu Pro Leu Arg Gly Ala Tyr Tyr  
 115 120 125  
 Ala Gly Leu Ala Tyr Asn Asn Ser Gln Ala Leu Gln Leu Pro His Pro  
 130 135 140  
 Ile Gln Lys Leu Leu Lys Glu Ile Ser Glu Ala Gln Ala Asp Gln Leu  
 145 150 155 160  
 Tyr Asp Val Ala Leu Ser Lys Ser Tyr Gln Leu Leu Gln Thr Ala Asn  
 165 170 175  
 Ser Ser Pro Glu Tyr Pro Thr Leu Ser Phe Leu Thr Leu Leu Arg Val  
 180 185 190  
 Ile Glu Leu Lys Glu Leu Leu His Gln Asp Val Ser Gln Asp Phe Ala  
 195 200 205  
 Ala Leu Lys Ser Ser Pro Leu Phe His Gln Phe Glu Arg Met Tyr Ser  
 210 215 220  
 Asp Gly Glu Trp Thr Leu Ser Lys Arg Phe Gly Lys Lys Gly  
 225 230 235

&lt;210&gt;728

&lt;211&gt;289

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;728

Gly Arg Thr Pro Cys Glu Cys Phe Ile Leu Gly Asp Ser Cys Arg Arg  
 1 5 10 15  
 Arg Gly Ser Leu Val Lys Lys Ile Arg Val His Asp Ser Gly Leu Ile  
 20 25 30  
 Asp Leu Asp Asp Leu Glu Lys Leu Asn Glu Gly Ala Gln Phe Val  
 35 40 45  
 Ser Ile Pro His Val Ser Asn Val Thr Gly Cys Val Gln Pro Leu Gln  
 50 55 60  
 Gln Val Ala Glu Leu Val His Arg Tyr Asp Ala Tyr Leu Ala Val Asp  
 65 70 75 80  
 Gly Ala Gln Gly Ala Pro His Leu Pro Ile Asp Val Gln Leu Trp Asp  
 85 90 95  
 Val Asp Phe Tyr Val Phe Ser Ser His Lys Ile Tyr Gly Pro Thr Gly  
 100 105 110  
 Ile Gly Val Leu Tyr Gly Lys Lys Asp Leu Leu Asp Gln Leu Pro Pro  
 115 120 125  
 Val Glu Gly Gly Gly Asp Met Val Ala Ile Tyr Asp His Gln Asn Pro  
 130 135 140  
 Glu Tyr Leu Pro Ala Pro Met Lys Phe Glu Ala Gly Thr Pro Asn Ile  
 145 150 155 160  
 Ala Gly Val Leu Gly Leu Gly Ala Ala Leu Asp Tyr Leu Asp Gly Leu  
 165 170 175  
 Ser Ala Lys Phe Ile Tyr Asp Lys Glu Ile Ala Leu Thr Thr Tyr Leu  
 180 185 190  
 His Lys Glu Leu Leu Glu Ile Pro Gly Val Glu Ile Leu Gly Pro Ser  
 195 200 205

Ile Glu Glu Pro Arg Gly Ala Leu Ile Gly Met Thr Ile Asp Gly Ala  
 210 215 220  
 His Pro Leu Asp Leu Gly Phe Leu Leu Asp Leu Arg Gly Ile Ala Val  
 225 230 235 240  
 Arg Thr Gly His Gln Cys Ala Gln Pro Ala Met Glu Arg Trp Asn Val  
 245 250 255  
 Gly His Val Leu Arg Val Ser Leu Gly Ile Tyr Asn Asp Glu Asp Asp  
 260 265 270  
 Ile Asp Gln Phe Ile Leu Val Leu Gln Asp Ser Leu Asp Lys Ile Arg  
 275 280 285  
 Arg

&lt;210&gt;729

&lt;211&gt;137

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;729

Ser Val Lys Asn Leu Lys Glu Asp Phe Pro Ile Phe Ala Ala Lys Ala  
 1 5 10 15  
 Lys Glu Asn Glu Pro Phe Ile Tyr Leu Asp Ser Ala Ala Thr Thr Gln  
 20 25 30  
 Lys Pro Gln Gln Val Ile Asp Ala Val Ala Asn Phe Tyr Thr Ser Ser  
 35 40 45  
 Tyr Ala Thr Val Asn Arg Ala Ile Tyr Ser Ser Ser Arg Asn Val Thr  
 50 55 60  
 Glu Ala Tyr Ala Ala Val Arg Glu Lys Val Arg Lys Trp Val Ser Ala  
 65 70 75 80  
 Ala Ser Asp Ser Glu Ile Val Phe Thr Arg Gly Thr Thr Ala Gly Leu  
 85 90 95  
 Asn Leu Leu Ala Ile Ser Val Asn Asp Leu Trp Ile Pro Lys Gly Gly  
 100 105 110  
 Val Val Leu Val Ser Glu Ala Glu His His Ala Asn Val Leu Ser Trp  
 115 120 125  
 Glu Ile Pro Val Gly Gly Glu Val Leu  
 130 135

&lt;210&gt;730

&lt;211&gt;410

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;730

Arg His Phe Leu Leu Leu Arg Val Leu Leu Cys Lys Lys Leu Arg  
 1 5 10 15  
 Lys Leu Ala Thr Leu Asn Ile Ala Ser Ser Leu Leu Gln Lys Arg Cys  
 20 25 30  
 Leu Val Ala Phe Leu Gly Phe Arg Ser Phe Leu Phe Phe Leu Ile Ala  
 35 40 45  
 Asn Asn Leu Ala Thr Gly Ala Ser Glu Leu Ile Lys Gln His Trp Leu  
 50 55 60  
 His Asn Asn His Ser Leu Ala Phe Glu Cys Ile Leu Ile Asn Gly Lys  
 65 70 75 80  
 Tyr Glu Pro Ser Leu Ser Gln Leu Pro Glu Gly Val Ile Val Cys Gly  
 85 90 95  
 Ile Asp Glu Ala Arg Gly Ser Leu Ser Ser Phe Met Gln Gly Phe Asp  
 100 105 110  
 Val Asn Lys His Pro Leu Ala Phe Leu Asn Ala Val Cys Ser Glu Asp  
 115 120 125  
 Arg Gly Val Val Ile Tyr Ile Pro Glu Glu Met Gln Thr Ser Asp Pro  
 130 135 140  
 Ile Phe Val Arg His Ile Ser Phe Pro Thr Val Ser Asp His Asp Val  
 145 150 155 160  
 Ile Phe Ser Pro Arg Ile Val Val Ile Leu Gly Gln Arg Ala Ser Ala  
 165 170 175  
 Gln Ile Gln Ile Ser His Asp Val Asp Leu Glu Met Val Gly Ser Ser  
 180 185 190

Lys Thr Ile Val Asn Gly Val Thr Glu Leu Phe Val Gly Glu Gly Ala  
 195 200 205  
 Asp Leu Thr Val Phe Met Val Pro Gly Tyr Ser Glu Glu Asp Thr Leu  
 210 215 220  
 Ser Trp Ser Thr Ile Ala Thr Val Glu Lys Asp Ala Ile Cys Arg Met  
 225 230 235 240  
 Thr Gln Asn Leu Leu Glu Ser Cys Gln Gly Phe Gly Trp Phe Asp Asn  
 245 250 255  
 Thr Ser Tyr Ile Val Gly Lys Lys Gly His Ala Glu Ser Leu Val Leu  
 260 265 270  
 Val Gln Ser Pro Arg Lys Thr Trp Val Asn Asn Leu Met Ser His Asp  
 275 280 285  
 Ala Glu Glu Thr Val Ser Arg Gln Asn Ile Lys Ser Ile Leu Tyr Ser  
 290 295 300  
 Gly His Phe Leu Phe Glu Gly Thr Ile Ser Ile Ser Ser Gln Gly Asp  
 305 310 315 320  
 Leu Ser Asp Ala Asn Gln Lys His Asp Thr Leu Leu Leu Ser Ser Glu  
 325 330 335  
 Ala Arg Val Ser Thr Phe Pro Arg Leu Glu Ile Glu Thr Asp Glu Val  
 340 345 350  
 Lys Ala Ser His Gly Ala Thr Val Gly Pro Leu Asp Pro Gln Gln Ile  
 355 360 365  
 Phe Tyr Met Arg Ser Arg Gly Met Thr Glu Ala Glu Ala Gln Glu Lys  
 370 375 380  
 Leu Ile His Gly Phe Leu Lys Gln Gly Leu Val Ser Asp Thr Phe Leu  
 385 390 395 400  
 Gly Ser Ser Phe Gln Leu Asn Gln Thr Ser  
 405 410

&lt;210&gt;731

&lt;211&gt;256

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;731

Met Leu Lys Ile Lys His Leu His Ala Ser Cys Asn Asp Val Lys Ile  
 1 5 10 15  
 Leu Asp Asp Phe Asn Leu Asn Ile Gln Pro Gly Xaa Met His Val Ile  
 20 25 30  
 Met Gly Pro Asn Gly Ala Gly Lys Ser Thr Leu Ala Lys Ile Leu Ala  
 35 40 45  
 Gly Asp Glu Ser Val Leu Val Ser Ser Gly Glu Ile Ala Leu Gln Glu  
 50 55 60  
 Gln Asn Leu Leu Ser Met Leu Pro Glu Glu Arg Ser Arg Ala Gly Leu  
 65 70 75 80  
 Phe Val Gly Phe Gln Met Pro Pro Glu Ile Pro Gly Val Asn Asn Lys  
 85 90 95  
 Met Phe Leu Arg Asp Ala Tyr Asn Ala Arg Arg Arg Ala Asn Gln Glu  
 100 105 110  
 Gly Asp Ile Ser Ile Asp Glu Phe Asn Thr Leu Leu Ser Thr Val Leu  
 115 120 125  
 Glu Thr Tyr Glu Tyr Asn Ala Thr Thr Asp Leu Phe Leu Asp Arg Asn  
 130 135 140  
 Val Asn Glu Gly Phe Ser Gly Gly Glu Arg Lys Arg Asn Glu Ile Cys  
 145 150 155 160  
 Gln Met Leu Val Leu Glu Pro Glu Met Val Leu Leu Asp Glu Pro Asp  
 165 170 175  
 Ser Gly Leu Asp Val Asp Ala Leu Arg Leu Ile Cys Arg Val Leu Glu  
 180 185 190  
 Lys Tyr Arg Glu Leu His Pro Thr Ser Ser Leu Cys Ile Val Thr His  
 195 200 205  
 Asn Pro Lys Leu Gly Asn Leu Ile Arg Pro Asp Val Val His Leu Leu  
 210 215 220  
 Leu Asp Gly Arg Val Ala Leu Ser Gly Asp Val Ser Leu Met His Glu  
 225 230 235 240  
 Leu Glu Ala Lys Ser Tyr Gln Glu Val Thr Lys Arg Val Ala Trp Arg

245 250 255  
 <210>732  
 <211>484  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>732  
 Met Gly Glu Ser Val Lys Val Phe Leu Glu Glu Arg Glu Asp Tyr Pro  
 1 5 10 15  
 Tyr Gly Phe Val Thr Pro Ile Glu Ser Gln Gly Leu Thr Arg Gly Leu  
 20 25 30  
 Ser Glu Glu Thr Ile Glu Glu Ile Ala Ala Leu Arg Asn Glu Pro Gln  
 35 40 45  
 Phe Ile Ile Asp Phe Arg Leu Gln Ala Tyr Arg Tyr Trp Lys Gln Leu  
 50 55 60  
 His Glu Pro Ala Trp Ala Arg Leu His Tyr Gly Pro Ile Ala Tyr Asp  
 65 70 75 80  
 Asp Ile Val Tyr Phe Ser Ser Pro Lys Gln Lys Lys Pro Leu Gly Arg  
 85 90 95  
 Leu Glu Asp Ala Asp Pro Glu Ile Leu Asp Thr Phe Lys Lys Leu Gly  
 100 105 110  
 Ile Pro Leu Asp Glu Gln Lys Arg Leu Leu Asn Val Glu Asn Val Ala  
 115 120 125  
 Val Asp Leu Val Phe Asp Ser Val Ser Ile Gly Thr Thr Phe Lys Glu  
 130 135 140  
 Ala Leu Glu Lys Ala Gly Val Ile Phe Cys Ser Leu Gly Glu Ala Ile  
 145 150 155 160  
 Gln Glu His Pro Asn Leu Val Lys Lys Tyr Leu Gly Ser Val Val Ser  
 165 170 175  
 His Arg Asp Asn Phe Phe Ala Ala Leu Asn Ala Ala Val Phe Ser Asp  
 180 185 190  
 Gly Ser Phe Val Tyr Val Pro Lys Gly Val Lys Cys Pro Met Asp Ile  
 195 200 205  
 Ser Thr Tyr Phe Arg Ile Asn Asn Lys Glu Ala Gly Gln Phe Glu Arg  
 210 215 220  
 Thr Leu Ile Val Val Glu Asp Gly Gly Tyr Ala Ser Tyr Leu Glu Gly  
 225 230 235 240  
 Cys Thr Ala Pro Ala Tyr Ser Ser Asn Gln Leu His Ala Ala Val Val  
 245 250 255  
 Glu Leu Val Ala His Glu His Ala Val Ile Arg Tyr Ser Thr Val Gln  
 260 265 270  
 Asn Trp Tyr Ala Gly Asp Lys Lys Thr Gly Lys Gly Gly Ile Tyr Asn  
 275 280 285  
 Phe Val Thr Lys Arg Gly Leu Cys Ala Gly Tyr Arg Ser Lys Ile Ser  
 290 295 300  
 Trp Ser Gln Val Glu Val Gly Ala Ala Ile Thr Trp Lys Tyr Pro Ser  
 305 310 315 320  
 Cys Ile Leu Lys Gly Asp Glu Ser Val Gly Glu Phe Tyr Ser Val Ala  
 325 330 335  
 Leu Thr Ser Gly Lys Met Gln Ala Asp Thr Gly Thr Lys Met Leu His  
 340 345 350  
 Val Gly Lys Arg Thr Thr Ser Thr Val Ile Ser Lys Gly Ile Ser Ser  
 355 360 365  
 Asp Glu Ser Lys Asn Thr Phe Arg Ser Leu Val Ser Leu Gly Lys Lys  
 370 375 380  
 Ala Glu His Ser Ser Asn Tyr Thr Gln Cys Asp Ser Met Leu Ile Gly  
 385 390 395 400  
 Lys Ala Ser Gly Ala Tyr Thr Asp Pro Lys Ile Val Val Glu Asn Ser  
 405 410 415  
 Thr Ser Ser Ile Glu His Glu Ala Thr Thr Ser Lys Leu Arg Glu Asp  
 420 425 430  
 Gln Leu Leu Tyr Leu Arg Ser Arg Gly Leu Ser Pro Glu Glu Ala Val  
 435 440 445  
 Ser Leu Val Ile His Gly Phe Cys Arg Glu Ile Ile Glu Gln Leu Pro  
 450 455 460

Leu Glu Phe Ala Gln Glu Ala Ser Lys Leu Leu Leu Ile Lys Leu Glu  
 465 470 475 480  
 Asn Ser Val Gly

&lt;210&gt;733

&lt;211&gt;351

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;733

Leu Arg Ser Thr Asn His Val Leu Gly Glu Ile Ser Met Glu Glu Ala  
 1 5 10 15  
 Ala Lys His Leu Ala Lys Glu Phe Leu Cys Ser Gly Ile Asn Leu Phe  
 20 25 30  
 Leu Ser Gly Glu Tyr Glu Gln Ala Glu Lys Arg Leu Lys Glu Thr Leu  
 35 40 45  
 Glu Leu Asp Ser Thr Ala Ala Leu Ala Tyr Cys Tyr Leu Gly Ile Ile  
 50 55 60  
 Ala Leu Glu Thr Gly Arg Val Ser Glu Ala Leu Asn Trp Cys Ser Lys  
 65 70 75 80  
 Gly Leu Ala Ser Glu Pro Gly Asp Ser Tyr Leu Arg Tyr Cys Tyr Gly  
 85 90 95  
 Val Ala Leu Asp Arg Gly Asn Gln Tyr Glu Ala Ala Ile Glu Gln Tyr  
 100 105 110  
 Ser Ala Tyr Val Ala Leu His Pro Asp Asp Val Glu Cys Trp Phe Ser  
 115 120 125  
 Leu Gly Ser Val Tyr His Arg Leu Lys Arg Leu Gln Glu Ala Leu Asp  
 130 135 140  
 Cys Phe Asp Lys Ile Leu Ala Leu Asp Pro Trp Asn Pro Gln Ser Leu  
 145 150 155 160  
 Tyr Asn Lys Ala Val Ile Leu Ser Glu Met Asp Asp Glu Ala Glu Ser  
 165 170 175  
 Ile Arg Leu Leu Glu Val Ala Val Ala Lys Asn Pro Leu Tyr Trp Lys  
 180 185 190  
 Ala Trp Val Lys Leu Gly Phe Leu Leu Ser Arg Ser Lys Arg Trp Asp  
 195 200 205  
 Lys Ala Thr Glu Ala Tyr Glu Arg Val Val Gln Leu Arg Pro Asp Leu  
 210 215 220  
 Ser Asp Gly His Tyr Asn Leu Gly Leu Cys Tyr Leu Thr Leu Asp Lys  
 225 230 235 240  
 Thr Arg Leu Ala Leu Lys Ala Phe Gln Glu Ala Leu Phe Leu Asn Ala  
 245 250 255  
 Glu Asp Ala Asp Ala His Phe Tyr Val Gly Leu Ala His Leu Asp Leu  
 260 265 270  
 Lys Gln Met Arg Glu Ala Tyr Glu Ala Phe Asn Ser Ala Leu Ser Ile  
 275 280 285  
 Asn Leu Glu His Glu Arg Ala His Tyr Leu Leu Gly Tyr Leu His His  
 290 295 300  
 Met Gln Gly Glu Thr Asp Lys Ala Thr Lys Glu Leu Leu Phe Leu Gln  
 305 310 315 320  
 Lys Lys Asp Ser Thr Phe Ala Pro Leu Leu Gln Lys Thr Val Val Ser  
 325 330 335  
 Asp Pro Ser Ser Met Gln Phe Glu Arg Arg Leu Asp Thr Ile Ser  
 340 345 350

&lt;210&gt;734

&lt;211&gt;660

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;734

Leu Pro Leu Thr Phe Asp Cys Phe Leu Asp Phe Leu Phe Pro Glu Asn  
 1 5 10 15  
 Ser Val Ile Lys Leu Gln Leu Lys Arg Asn Ser Phe Val Gly Gln Ala  
 20 25 30  
 Ile Glu Val Gln Asn Leu Val Thr Arg Leu Leu Ser Leu Phe Pro Tyr  
 35 40 45

Glu Glu Gly Thr Cys Pro Cys Ser Ala Ile Phe Asp Ala Val Phe Pro  
 50 55 60  
 Asn Glu Glu Gly His Ile Leu Ile Gln Glu Val Ile Ser Leu Gln Glu  
 65 70 75 80  
 Gln Lys Trp Ile Met Glu Cys Leu Asn Gln His Lys Ala Asp Ile Glu  
 85 90 95  
 Glu Leu Lys Glu Ala Leu Asp Gln Val Phe Asn Glu Leu Pro Ala Asn  
 100 105 110  
 Tyr Asp Lys Ile Leu Tyr Thr Asp Ile Leu Arg Leu Ile Val Asp Pro  
 115 120 125  
 Glu Arg Phe Ser Pro Val Leu Pro Ser Glu Val His Arg Leu Ser Leu  
 130 135 140  
 Ser Glu Phe Thr Glu Leu Gln Gly Arg Tyr Val Val Leu Arg Ser Ala  
 145 150 155 160  
 Phe Ser Thr Ile Leu Glu Asp Ala Phe Ile Glu Val His Phe Lys Ser  
 165 170 175  
 Trp Arg Lys Ser Glu Phe Leu Gln Tyr Leu Ala Ala Lys Arg Gln Glu  
 180 185 190  
 Glu Ala Leu Arg Lys Gln Arg Tyr Pro Thr Pro Tyr Val Asp Tyr Leu  
 195 200 205  
 Glu Glu Glu Lys Thr Arg Gln Tyr Lys Met Phe Cys Gln Glu His Leu  
 210 215 220  
 Asp Thr Phe Leu Ala Tyr Leu Phe Ser Lys Thr Pro Tyr Lys Glu Gly  
 225 230 235 240  
 Leu Glu Pro Tyr Tyr Asp Ile Leu Asp Leu Trp Ile Asn Glu Leu Asp  
 245 250 255  
 Asn Gly Ala His Arg Ala Leu Ser Trp Asn Glu His Tyr Leu Phe Leu  
 260 265 270  
 Lys Glu Arg Val Ser His Leu Ser Glu His Leu Pro Ala Leu Phe Ser  
 275 280 285  
 Thr Phe Arg Glu Phe Asn Glu Leu Gln Arg Pro Leu Leu Gly Lys Tyr  
 290 295 300  
 Pro Ile Ser Ile Val Arg Asn Lys Arg Gln Thr Glu Gln Asp Leu Ala  
 305 310 315 320  
 Ala Ser Phe Tyr Pro Val Tyr Gly Tyr Gly Tyr Leu Arg Pro His Ala  
 325 330 335  
 Tyr Gly Gln Ala Ala Thr Leu Gly Ser Ile Phe Lys Leu Val Ser Ala  
 340 345 350  
 Tyr Ser Val Leu Ser Gln Arg Ile Leu Trp Gly His Asn Glu Glu Pro  
 355 360 365  
 Ala Asn Pro Leu Val Ile Ile Asp Lys Asn Ser Phe Gly Tyr Arg Ser  
 370 375 380  
 Ser Lys Pro His Val Gly Phe Phe Lys Asp Gly Thr Pro Ile Pro Thr  
 385 390 395 400  
 Phe Phe Arg Gly Gly Ser Leu Pro Gly Asn Asp Phe Met Gly Arg Gly  
 405 410 415  
 Phe Ile Asp Leu Val Ser Ala Leu Glu Met Ser Ser Asn Pro Tyr Phe  
 420 425 430  
 Ser Leu Leu Val Gly Glu Gly Leu Gly Asp Pro Glu Asp Leu Ala Asp  
 435 440 445  
 Ala Ala Ser Leu Phe Gly Phe Gly Glu Lys Thr Gly Leu Gly Leu Pro  
 450 455 460  
 Gly Glu Tyr Ala Gly Arg Val Pro His Asp Leu Ala Tyr Asn Arg Ser  
 465 470 475 480  
 Gly Leu Tyr Ala Thr Ala Ile Gly Gln His Thr Leu Val Val Thr Pro  
 485 490 495  
 Leu Gln Thr Ala Val Met Leu Ala Ser Leu Val Asn Gly Gly Val Val  
 500 505 510  
 Tyr Val Pro Lys Leu Leu Leu Gly Glu Trp Glu Gly Glu His Val Ser  
 515 520 525  
 Tyr Leu Ser Ser Lys Lys Lys Arg Thr Ile Phe Met Pro Asp Ala Val  
 530 535 540  
 Val Glu Val Leu Lys Thr Gly Met Arg Asn Val Ile Trp Gly Gln Tyr  
 545 550 555 560



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<210>735
<211>139
<212>PRT
<213>Chlamydia pneumoniae
<400>735
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```
<210>736
<211>286
<212>PRT
<213>Chlamydia pneumoniae
<400>736
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839

Leu Lys Met Leu Ser Lys Asp Trp Pro Gly Leu His Val Glu Ala Val  
 180 185 190  
 Val Arg Arg His Tyr Pro Gln Glu Ser Val Ala Ser Asp Ile Leu Gly  
 195 200 205  
 Tyr Val Gly Pro Ile Ser Leu Gln Glu Tyr Lys Arg Val Thr Gln Glu  
 210 215 220  
 Leu Ser Gln Leu Arg Glu Cys Val Arg Ala Tyr Glu Glu Gly Glu Asp  
 225 230 235 240  
 Pro Lys Leu Pro Glu Gly Leu Ala Ser Ile Asp Gln Val Arg Ala Leu  
 245 250 255  
 Leu Glu Ser Val Glu Ser Asn Ala Tyr Ser Leu Asn Ala Leu Val Gly  
 260 265 270  
 Lys Met Gly Val Glu Ala Leu Leu Gly Leu Lys Ile Thr Arg  
 275 280 285  
 <210>737  
 <211>391  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>737  
 Val Ser Met Lys Lys Leu Leu Lys Ser Ala Leu Leu Ser Ala Ala Phe  
 1 5 10 15  
 Ala Gly Ser Val Gly Ser Leu Gln Ala Leu Pro Val Gly Asn Pro Ser  
 20 25 30  
 Asp Pro Ser Leu Leu Ile Asp Gly Thr Ile Trp Glu Gly Ala Ala Gly  
 35 40 45  
 Asp Pro Cys Asp Pro Cys Ala Thr Trp Cys Asp Ala Ile Ser Leu Arg  
 50 55 60  
 Ala Gly Phe Tyr Gly Asp Tyr Val Phe Asp Arg Ile Leu Lys Val Asp  
 65 70 75 80  
 Ala Pro Lys Thr Phe Ser Met Gly Ala Lys Pro Thr Gly Ser Ala Ala  
 85 90 95  
 Ala Asn Tyr Thr Thr Ala Val Asp Arg Pro Asn Pro Ala Tyr Asn Lys  
 100 105 110  
 His Leu His Asp Ala Glu Trp Phe Thr Asn Ala Gly Phe Ile Ala Leu  
 115 120 125  
 Asn Ile Trp Asp Arg Phe Asp Val Phe Cys Thr Leu Gly Ala Ser Asn  
 130 135 140  
 Gly Tyr Ile Arg Gly Asn Xaa Tyr Arg Phe Asn Leu Val Gly Leu Phe  
 145 150 155 160  
 Gly Val Lys Gly Thr Thr Val Asn Ala Asn Xaa Leu Pro Asn Val Ser  
 165 170 175  
 Leu Ser Asn Gly Val Val Glu Leu Tyr Thr Asp Thr Ser Phe Ser Trp  
 180 185 190  
 Ser Val Gly Ala Arg Gly Ala Leu Trp Glu Cys Gly Cys Ala Thr Leu  
 195 200 205  
 Gly Ala Glu Phe Gln Tyr Ala Gln Ser Lys Pro Lys Val Glu Glu Leu  
 210 215 220  
 Asn Val Ile Cys Asn Val Ser Gln Phe Ser Val Asn Lys Pro Lys Gly  
 225 230 235 240  
 Tyr Lys Gly Val Ala Phe Pro Leu Pro Thr Asp Ala Gly Val Ala Thr  
 245 250 255  
 Ala Thr Gly Thr Lys Ser Ala Thr Ile Asn Tyr His Glu Trp Gln Val  
 260 265 270  
 Gly Ala Ser Leu Ser Tyr Arg Leu Asn Ser Leu Val Pro Tyr Ile Gly  
 275 280 285  
 Val Gln Trp Ser Arg Ala Thr Phe Asp Ala Asp Asn Ile Arg Ile Ala  
 290 295 300  
 Gln Pro Lys Leu Pro Thr Ala Val Leu Asn Leu Thr Ala Trp Asn Pro  
 305 310 315 320  
 Ser Leu Leu Gly Asn Ala Thr Ala Leu Ser Thr Thr Asp Ser Phe Ser  
 325 330 335  
 Asp Phe Met Gln Ile Val Ser Cys Gln Ile Asn Lys Phe Lys Ser Arg  
 340 345 350  
 Lys Ala Cys Gly Val Thr Val Gly Ala Thr Leu Val Asp Ala Asp Lys

355 360 365  
 Trp Ser Leu Thr Ala Glu Ala Arg Leu Ile Asn Glu Arg Ala Ala His  
 370 375 380  
 Val Ser Gly Gln Phe Arg Phe  
 385 390  
 <210>738  
 <211>292  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>738  
 Met Pro Leu Leu Thr Tyr Ser Asn Phe Glu Ile Glu Val Gln Ser Leu  
 1 5 10 15  
 Glu Ser Gln Ser Cys Lys Leu Thr Ile Lys Asp Leu Met Ser Ala Gly  
 20 25 30  
 Ala His Phe Gly His Gln Thr Arg Arg Trp Asn Pro Lys Met Lys Leu  
 35 40 45  
 Tyr Ile Phe Glu Glu Lys Asn Gly Leu Tyr Ile Ile Asn Leu Ala Lys  
 50 55 60  
 Thr Leu Gln Gln Leu Arg Asn Ala Leu Pro His Ile Arg Lys Val Ile  
 65 70 75 80  
 Gln Asp Asn Lys Thr Val Leu Phe Val Gly Thr Lys Lys Gln Ala Lys  
 85 90 95  
 Cys Val Ile Arg Glu Ala Ala Ile Glu Ala Gly Glu Phe Phe Ile Ala  
 100 105 110  
 Glu Arg Trp Leu Gly Gly Met Leu Thr Asn Met Thr Thr Ile Arg Asn  
 115 120 125  
 Ser Ile Lys Thr Leu Asp Lys Ile Glu Lys Asp Leu Ser Arg Asn Gln  
 130 135 140  
 Ala Tyr Leu Thr Lys Lys Glu Ala Ala Leu Leu Ala Lys Arg His Gln  
 145 150 155 160  
 Lys Leu Leu Arg Asn Leu Glu Gly Ile Arg Tyr Met Lys Lys Ala Pro  
 165 170 175  
 Gly Leu Leu Val Val Val Asp Pro Ser Tyr Glu Lys Ile Ala Val Ala  
 180 185 190  
 Glu Ala Lys Lys Leu Gly Ile Pro Val Leu Ala Leu Val Asp Thr Asn  
 195 200 205  
 Cys Asp Pro Thr Pro Ile Asp His Val Ile Pro Cys Asn Asp Asp Ser  
 210 215 220  
 Leu Lys Ser Ile Arg Leu Ile Ile Asn Val Ile Lys Glu Asn Ile Ile  
 225 230 235 240  
 Glu Ala Lys His Lys Leu Gly Ile Glu Ile Val Ser Pro Val Lys Ser  
 245 250 255  
 Leu Glu Val Pro Asp Leu Ser Ala Phe Glu Ser Ser Gln Asp Asp Glu  
 260 265 270  
 Ser Asp Glu Glu Asn Arg Glu Glu Asp Leu Leu Ala Lys Lys Phe Asp  
 275 280 285  
 Gly Glu Ala Asn  
 290  
 <210>739  
 <211>282  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>739  
 Met Ser Asp Phe Ser Met Glu Thr Leu Lys Thr Leu Arg Gln Gln Thr  
 1 5 10 15  
 Gly Val Gly Leu Thr Lys Cys Lys Glu Ala Leu Glu Ala Cys Gly Gly  
 20 25 30  
 Asn Leu Glu Glu Ala Val Val Tyr Leu Arg Lys Leu Gly Leu Ala Ser  
 35 40 45  
 Ala Gly Lys Lys Glu His Arg Glu Thr Lys Glu Gly Ile Ile Ala Ala  
 50 55 60  
 Lys Thr Asp Ala Asn Gly Thr Ala Leu Ile Glu Val Asn Val Glu Thr  
 65 70 75 80  
 Asp Phe Val Ala Asn Asn Ala Val Phe Arg Glu Phe Val Ser Asn Leu

<211>180

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;741

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Met Ser Val Leu Gln Asp Thr Glu Lys Lys Met Ala Ala Ala Leu Asp
 1              5              10              15
Phe Phe His Lys Glu Val Lys Ser Phe Arg Thr Gly Lys Ala His Pro
              20              25              30
Ala Leu Val Glu Thr Val Val Val Asp Val Tyr Gly Thr Thr Met Arg
              35              40              45
Leu Ser Asp Ile Ala Ser Ile Ser Val Ala Asp Leu Arg Gln Leu Val
 50              55              60
Ile Ser Pro Tyr Asp Gly Asn Asn Ala Ser Ala Ile Ala Lys Gly Ile
 65              70              75              80
Ile Ala Ala Asn Leu Asn Leu Gln Pro Glu Val Glu Gly Ser Ile Ile
              85              90              95
Arg Ile Lys Val Pro Glu Pro Thr Ala Asp Tyr Arg Gln Glu Met Ile
              100              105              110
Lys Gln Leu Arg Arg Lys Cys Glu Glu Ala Lys Ile Asn Val Arg Asn
 115              120              125
Ile Arg Arg Glu Ala Asn Asp Lys Leu Lys Lys Asp Ser Ala Leu Thr
 130              135              140
Glu Asp Val Val Lys Gly Asn Glu Lys Lys Ile Gln Glu Leu Thr Asp
 145              150              155              160
Lys Phe Cys Lys Gln Leu Asp Glu Leu Thr Lys Gln Lys Glu Ala Glu
              165              170              175
Ile Ala Ser Ile
              180

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&lt;210&gt;742

&lt;211&gt;172

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;742

```

Leu Met Val His Ser Pro Thr His Gln Cys Tyr His Cys Gln Gln Pro
 1              5              10              15
Ala Thr Ile Cys Tyr Thr Glu Ile Asp Lys Asp Lys Val Ile Arg Ser
              20              25              30
Tyr Val Cys Ala Thr Cys Pro Cys Pro Ser His Tyr Tyr Asn Asn Glu
              35              40              45
His Leu Ser Leu Ser Lys Gly Val Gly Val Leu Thr Leu Glu Cys Gly
 50              55              60
Asn Cys Lys Thr Val Trp His Ser Lys Gln Asp Asp Glu Gln Leu Leu
 65              70              75              80
Gly Cys His Gln Cys Tyr Thr Asn Phe Lys Asn Gln Ile Thr Ser Lys
              85              90              95
Leu Lys Ser Glu Arg Val Val Ser Ser Ser Phe Thr Met Glu Lys Gly
              100              105              110
Gln Gly Ser Leu His Ile Gly Arg Ala Pro Gly Glu Ala Ser Asn Thr
              115              120              125
Asn Pro Leu Leu Lys Leu Ile Ala Leu Asn Glu Ala Leu Gln Asp Thr
 130              135              140
Leu Glu Arg Glu Asp Tyr Glu Gln Ala Ala Val Ile Arg Asp Gln Ile
 145              150              155              160
Asn His Leu Lys Thr Lys Asn Pro Asp Asp Pro Ser
              165              170

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&lt;210&gt;743

&lt;211&gt;358

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;743

```

Met Thr Leu Pro Asn Asp Leu Leu Glu Thr Leu Val Lys Arg Lys Glu
 1              5              10              15
Ser Pro Gln Ala Asn Lys Val Trp Pro Val Thr Thr Phe Ser Leu Ala
              20              25              30
Arg Asn Leu Ser Val Ser Lys Phe Leu Pro Cys Leu Ser Lys Glu Gln

```

35 40 45  
 Lys Leu Glu Ile Leu Gln Phe Ile Thr Ser His Phe Asn His Ile Glu  
 50 55 60  
 Gly Phe Gly Glu Phe Ile Val Leu Pro Leu Lys Asp Thr Pro Leu Trp  
 65 70 75 80  
 Gln Lys Glu Phe Leu Leu Glu His Phe Leu Leu Pro Tyr Asp Leu Val  
 85 90 95  
 Gly Asn Pro Glu Gly Glu Ala Leu Val Val Ser Arg Ser Gly Asp Phe  
 100 105 110  
 Leu Ala Ala Ile Asn Phe Gln Asp His Leu Val Leu His Gly Ile Asp  
 115 120 125  
 Phe Gln Gly Asn Val Glu Lys Thr Leu Asp Gln Leu Val Gln Leu Asp  
 130 135 140  
 Ser Tyr Leu His Ser Lys Leu Ser Phe Ala Phe Ser Ser Glu Phe Gly  
 145 150 155 160  
 Phe Leu Thr Thr Asn Pro Lys Asn Cys Gly Thr Gly Leu Lys Ser Gln  
 165 170 175  
 Cys Phe Leu His Ile Pro Ala Leu Leu Tyr Ser Lys Glu Phe Thr Asn  
 180 185 190  
 Leu Ile Asp Glu Glu Val Glu Ile Thr Ser Ser Leu Leu Leu Gly  
 195 200 205  
 Val Thr Gly Phe Pro Gly Asn Ile Val Val Leu Ser Asn Arg Cys Ser  
 210 215 220  
 Leu Gly Leu Thr Glu Glu Leu Leu Leu Ser Ser Leu Arg Ile Thr Ala  
 225 230 235 240  
 Ser Lys Leu Ser Val Ala Glu Val Ala Ala Lys Lys Arg Leu Ser Glu  
 245 250 255  
 Glu Asn Ser Gly Asp Leu Lys Asn Leu Ile Leu Arg Ser Leu Gly Leu  
 260 265 270  
 Leu Thr His Ser Cys Gln Leu Glu Leu Lys Glu Thr Leu Asp Ala Leu  
 275 280 285  
 Ser Trp Ile Gln Leu Gly Ile Asp Leu Gly Leu Ile Lys Val Thr Glu  
 290 295 300  
 Asn His Pro Leu Trp Asn Pro Leu Phe Trp Gln Ile Arg Arg Ala His  
 305 310 315 320  
 Leu Ala Leu Gln Lys Gln Ala Glu Asn Ser Arg Asp Leu Gln Lys Asp  
 325 330 335  
 Thr Ile Ser His Leu Arg Ala Ser Val Leu Lys Glu Leu Thr Lys Gly  
 340 345 350  
 Leu Ser Pro Glu Ser Phe  
 355

&lt;210&gt;744

&lt;211&gt;561

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;744

Ser Cys Cys Gly Tyr Pro Ser Val Pro Ser Leu Gln Arg Gln Pro Ser  
 1 5 10 15  
 Ala Ala Val Asn Ile Ile Gln Pro Leu Leu Ser His Asp Ala Ile Val  
 20 25 30  
 Ser Ala Ser Glu Ala Thr Arg His Val Ile Ile Ser Asp Ile Ala Gly  
 35 40 45  
 Asn Val Asp Lys Val Ser Asp Leu Leu Ala Ala Leu Asp Cys Pro Gly  
 50 55 60  
 Thr Ser Val Asp Met Thr Glu Tyr Glu Val Lys Tyr Ala Asn Pro Ala  
 65 70 75 80  
 Ala Leu Val Ser Tyr Cys Gln Asp Val Leu Gly Thr Leu Ala Glu Asp  
 85 90 95  
 Asp Ala Phe Gln Met Phe Ile Gln Pro Gly Thr Asn Lys Ile Phe Val  
 100 105 110  
 Val Ser Ser Pro Arg Leu Ala Asn Lys Ala Glu Gln Leu Leu Lys Ser  
 115 120 125  
 Leu Asp Val Pro Glu Met Ala His Thr Leu Asp Asp Pro Ala Ser Thr  
 130 135 140

Ala Leu Ala Leu Gly Gly Thr Gly Thr Thr Ser Pro Lys Ser Leu Arg  
 145 150 155 160  
 Phe Phe Met Tyr Lys Leu Lys Tyr Gln Asn Gly Glu Val Ile Ala Asn  
 165 170 175  
 Ala Leu Gln Asp Ile Gly Tyr Asn Leu Tyr Val Thr Thr Ala Met Asp  
 180 185 190  
 Glu Asp Phe Ile Asn Thr Leu Asn Ser Ile Gln Trp Leu Glu Val Asn  
 195 200 205  
 Asn Ser Ile Val Ile Ile Gly Asn Gln Gly Asn Val Asp Arg Val Ile  
 210 215 220  
 Gly Leu Leu Asn Gly Leu Asp Leu Pro Pro Lys Gln Val Tyr Ile Glu  
 225 230 235 240  
 Val Leu Ile Leu Asp Thr Ser Leu Glu Lys Ser Trp Asp Phe Gly Val  
 245 250 255  
 Gln Trp Val Ala Leu Gly Asp Glu Gln Ser Lys Val Ala Tyr Ala Ser  
 260 265 270  
 Gly Leu Leu Asn Asn Thr Gly Ile Ala Thr Pro Thr Lys Ala Thr Val  
 275 280 285  
 Pro Pro Gly Thr Pro Asn Pro Gly Ser Ile Pro Leu Pro Thr Pro Gly  
 290 295 300  
 Gln Leu Thr Gly Phe Ser Asp Met Leu Asn Ser Ser Ala Phe Gly  
 305 310 315 320  
 Leu Gly Ile Ile Gly Asn Val Leu Ser His Lys Gly Lys Ser Phe Leu  
 325 330 335  
 Thr Leu Gly Gly Leu Leu Ser Ala Leu Asp Gln Asp Gly Asp Thr Val  
 340 345 350  
 Ile Val Leu Asn Pro Arg Ile Met Ala Gln Asp Thr Gln Gln Ala Ser  
 355 360 365  
 Phe Phe Val Gly Gln Thr Val Pro Tyr Gln Thr Thr Asn Thr Ile Ile  
 370 375 380  
 Gln Glu Thr Gly Thr Val Thr Gln Asn Ile Asp Tyr Glu Asp Ile Gly  
 385 390 395 400  
 Val Asn Leu Val Val Thr Ser Thr Val Ala Pro Asn Asn Val Val Thr  
 405 410 415  
 Leu Gln Ile Glu Gln Thr Ile Ser Glu Leu His Ser Ala Ser Gly Ser  
 420 425 430  
 Leu Thr Pro Val Thr Asp Lys Thr Tyr Ala Ala Thr Arg Leu Gln Ile  
 435 440 445  
 Pro Asp Gly Cys Phe Leu Val Met Ser Gly His Ile Arg Asp Lys Thr  
 450 455 460  
 Thr Lys Val Val Ser Gly Val Pro Leu Leu Asn Ser Ile Pro Leu Ile  
 465 470 475 480  
 Arg Gly Leu Phe Ser Arg Thr Ile Asp Gln Arg Gln Lys Arg Asn Ile  
 485 490 495  
 Met Met Phe Ile Lys Pro Lys Val Ile Ser Ser Phe Glu Glu Gly Thr  
 500 505 510  
 Arg Val Thr Asn Lys Glu Gly Tyr Arg Tyr Asn Trp Glu Ala Asp Glu  
 515 520 525  
 Gly Ser Met Gln Val Ala Pro Arg His Ala Pro Glu Cys Gln Gly Pro  
 530 535 540  
 Pro Ser Leu Gln Ala Glu Ser Asp Phe Lys Ile Ile Glu Ile Glu Ala  
 545 550 555 560  
 Gln

&lt;210&gt;745

&lt;211&gt;381

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;745

Leu Lys Lys Asn Pro Val Lys Thr Val Ile Leu Asn Ile Gly Arg Lys  
 1 5 10 15  
 Ile Leu Gln Gly Ile Lys Lys Xaa Lys Lys Lys Ile Gly Ile Xaa Ser  
 20 25 30  
 Gly Leu Phe Phe Leu Asp Leu Val Leu Leu Gly Val Ser Xaa Gln Arg

35 40 45  
 Pro Thr Glu Thr Ser Ala Asn Val Lys His Asn Leu Arg Asp Glu Lys  
 50 55 60  
 Leu Ala Ala Cys Pro Lys Asn Ser Ala Ala Ser Leu Ser Ala Lys Lys  
 65 70 75 80  
 Ser His Thr Lys Lys Thr Thr Pro Gly Ser Ile Pro Ser Lys Val Phe  
 85 90 95  
 Ser Lys Phe Asp Ala Thr Gln Asp Lys Thr Phe Gln Lys Thr Ser Gly  
 100 105 110  
 Ser Ala Phe Pro Ala Lys Pro Thr Thr Leu Lys Glu Leu Glu Glu Arg  
 115 120 125  
 Lys Lys Pro Arg Pro Glu Arg Arg Thr Thr Ala Asp Val Lys Arg Ser  
 130 135 140  
 Pro Arg Phe Leu Pro Thr Gln Glu Val Glu Glu Pro Val Pro Ala Ala  
 145 150 155 160  
 Ser Lys Glu Gln Leu Asp Ser Ile Gln Val Trp Glu Glu Lys Gln Asn  
 165 170 175  
 Tyr Ala Arg Arg Ala Val Asn Ala Ile Asn Leu Ser Ile Lys Lys Gln  
 180 185 190  
 Leu Glu Glu Gln Thr Ser Thr Val Thr Glu Lys Asp Val Gln Pro Lys  
 195 200 205  
 Thr Gln Ala Thr Pro His Ala Ser Lys Lys Asn Val Ala Ser Pro Ser  
 210 215 220  
 Thr Ser Met Pro Gly Ile Glu Lys Ala Ala Thr Thr Val Ala Val Pro  
 225 230 235 240  
 Gln Asp Lys Ser Glu Glu Glu Lys Val Lys Glu Arg Leu Thr Lys Arg  
 245 250 255  
 Glu Leu Thr Cys Glu Asp Leu Lys Asp Asn Gly Tyr Thr Val Asn Phe  
 260 265 270  
 Glu Asp Ile Ser Ile Leu Glu Leu Leu Gln Phe Val Ser Lys Ile Ser  
 275 280 285  
 Gly Thr Asn Phe Val Phe Asp Ser Asn Asp Leu Gln Phe Asn Val Thr  
 290 295 300  
 Ile Val Ser His Asp Pro Thr Ser Val Asp Asp Leu Ser Thr Ile Leu  
 305 310 315 320  
 Leu Gln Val Leu Lys Met His Asp Leu Lys Val Val Glu Gln Gly Asn  
 325 330 335  
 Asn Val Leu Ile Tyr Arg Asn Pro His Leu Ser Lys Leu Ser Thr Val  
 340 345 350  
 Val Thr Asp Ser Ser Leu Lys Glu Thr Cys Glu Ala Val Val Val Thr  
 355 360 365  
 Arg Val Phe Arg Leu Tyr Ser Val Ser Pro Leu Gln Gln  
 370 375 380

&lt;210&gt;746

&lt;211&gt;94

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;746

Phe Cys Phe Ser Ser Gln Thr Cys Ile Leu Ser Asn Cys Ser Leu Glu  
 1 5 10 15  
 Ala Ala Gly Thr Gly Ser Ser Thr Ser Cys Val Gly Lys Lys Arg Gly  
 20 25 30  
 Asp Leu Phe Thr Ser Ala Val Val Leu Arg Ser Gly Arg Gly Phe Phe  
 35 40 45  
 Leu Ser Ser Ser Ser Phe Arg Val Val Gly Phe Ala Gly Asn Ala Asp  
 50 55 60  
 Pro Glu Val Phe Trp Lys Val Leu Ser Trp Val Ala Ser Asn Leu Glu  
 65 70 75 80  
 Lys Thr Leu Leu Gly Ile Glu Pro Gly Val Val Phe Leu Val  
 85 90

&lt;210&gt;747

&lt;211&gt;502

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae



&lt;400&gt;747

```

Met Asp Cys Arg Gly Gly Ile Pro Leu Pro Glu Pro Gln Val Ile Gly
 1          5          10          15
Gly Tyr His Val Lys Lys Ile Leu Ser Lys Lys Leu Arg Ser Arg Val
          20          25          30
Val His Gly Leu His Pro Glu Thr Arg His Ser Thr Val Ile Lys Val
          35          40          45
Phe Ser Pro Ser Pro Ser Phe Thr Ser Arg Ser Val Tyr Asn Phe Leu
          50          55          60
Lys Glu Ala Gln Ser Leu His Gln Ile Thr His Pro Asn Ile Val Lys
          65          70          75          80
Phe His Arg Tyr Gly Lys Trp Gln Asp Cys Leu Tyr Ile Ala Met Glu
          85          90          95
Tyr Ile Glu Gly Ile Ser Leu Arg Glu Tyr Ile Leu Ala Gln Phe Ile
          100          105          110
Ser Leu Pro Gln Ala Ile Asp Ile Ile Phe Asp Ile Ala Gln Ala Leu
          115          120          125
Glu His Leu His Ser Arg Asn Ile Leu His Lys Asp Ile Lys Pro Glu
          130          135          140
Asn Ile Leu Ile Thr Pro Gln Gly Lys Ile Lys Leu Ile Asp Phe Gly
145          150          155          160
Leu Ala Asp Trp Asp Thr Glu Ile Gln Arg Ala His Pro Ser Val Ile
          165          170          175
Gly Thr Pro Tyr Tyr Met Ser Pro Glu Gln Arg Gln Gly Glu Ser His
          180          185          190
Ser Pro Ala Ser Asp Ile Tyr Ala Leu Gly Leu Leu Ala Tyr Glu Leu
          195          200          205
Ile Leu Gly His Leu Ser Leu Gly Arg Val Phe Leu Ser Leu Val Pro
          210          215          220
Glu Arg Ile Ser Lys Ile Leu Ala Lys Ala Leu Gln Pro Ser Pro Asn
225          230          235          240
Asn Arg Tyr Ser Ser Thr Arg Glu Phe Ile Gln Asp Ile His His Tyr
          245          250          255
Arg Met Ser Gly Asp Met Gln Glu Asp Leu Arg Ile Lys Asp His Thr
          260          265          270
Val Ala Leu Tyr Glu Gln Leu Gln Thr Gln Arg Phe Trp Leu Ala Pro
          275          280          285
Glu Thr Leu Arg Phe Pro Asp Phe Ile Ser Gly Val Leu Tyr His Gln
          290          295          300
Gly Tyr Pro Leu Tyr Pro His Ala Tyr Asp Thr Leu Leu Glu Gly Asp
305          310          315          320
Val Phe Asn Leu Trp Leu Gly Tyr Ser Pro Ile Ser Asn Ala Thr Ile
          325          330          335
Ala Leu Ser Val Val Lys Ser Leu Val Cys Gln Gln Asp Leu Gln Arg
          340          345          350
Pro Leu Leu Asp Arg Val Cys Glu Ile Asn Glu Cys Leu Ile Arg Met
          355          360          365
Lys Ile Pro Ile Asp Glu Met Gly Ile Ser Ile Leu Cys Leu Glu Ile
          370          375          380
Ser Lys Glu Asn Lys Glu Leu Ser Trp Ile Ala Cys Gly Lys Thr Val
385          390          395          400
Phe Trp Ile Lys Arg Gln Gly Arg Val Val Gln Asp Phe Glu Ser Phe
          405          410          415
Ser Pro Gly Leu Gly Lys Ile Thr Ser Leu Gln Ile Arg Glu Thr Lys
          420          425          430
Val Ala Trp Glu Ile Gly Asp Glu Ala Val Val Cys Thr Leu Glu Leu
          435          440          445
Glu Glu Ser Val Ala Ser Leu Lys Thr Leu Ser Leu Ala Glu Leu Gln
          450          455          460
Asp Arg Arg Gln Lys Ala Ile Phe Cys Pro Ile Glu Ser Ile His Gly
465          470          475          480
Gly Ile Gln Ser Arg Gln His Gly Ser Asn Ser Pro Ser Thr Leu Ile
          485          490          495
Ser Leu Lys Arg Ile Arg

```

500

&lt;210&gt;748

&lt;211&gt;374

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;748

Arg Tyr Phe Met Ala Val Ala Ala Asp Ser Ser Ala Ser Trp Leu Lys  
 1 5 10 15  
 Ser Arg Asn Asn Phe Leu Ser Ser Leu Gly Lys Thr Glu Glu Gln Val  
 20 25 30  
 Ala Ala Pro Glu Phe Pro Lys Glu Leu Cys Gln His Lys Ile Arg Glu  
 35 40 45  
 Lys Phe Arg Leu Glu Asp Val Gln Val Ser Ile Lys Phe Arg Gly Ser  
 50 55 60  
 Ile Thr Ala Val Glu Ala Thr Lys Glu Phe Gly Val His Leu Leu Ile  
 65 70 75 80  
 Gln Pro Met Val Val Gln Pro Trp Glu Val Glu Asn Leu Leu Phe Leu  
 85 90 95  
 Thr Ser Glu Glu Asp Leu Gln Glu Leu Met Val Ala Val Phe Asp Asp  
 100 105 110  
 Ala Ser Leu Ala Ser Tyr Phe Tyr Glu Lys Asp Lys Leu Leu Gly Phe  
 115 120 125  
 His Tyr Tyr Phe Val Ala Glu Ala Cys Lys Leu Phe Glu Glu Leu Gln  
 130 135 140  
 Trp Val Pro Ser Leu Ser Ala Lys Val Gly Gly Asp Ala Ile Phe Thr  
 145 150 155 160  
 Ala Thr Ser Leu Gln Gly Ser Phe Gln Val Val Asp Ile Ser Leu Arg  
 165 170 175  
 Leu Asp Gly Lys Asn Val Arg Cys Arg Leu Leu Leu Pro Glu Asp Thr  
 180 185 190  
 Phe Gln Ser Cys Gln Lys Phe Phe Ser Gly Leu His Asp Glu Ser Asp  
 195 200 205  
 Leu His Asn Ile Asp Gln Thr Gln Gln Ile Ser Leu Ser Val Glu Val  
 210 215 220  
 Gly Tyr Ser Gln Leu Thr Gln Glu Glu Trp His Gln Val Val Pro Gly  
 225 230 235 240  
 Ser Phe Ile Met Leu Asp Ser Cys Leu Tyr Asp Pro Glu Thr Glu Glu  
 245 250 255  
 Ser Gly Ala Leu Leu Thr Val Gln Lys His Gln Phe Phe Gly Gly Arg  
 260 265 270  
 Phe Leu Thr Pro Ser Ser Gly Glu Phe Lys Ile Thr Ser Tyr Pro Asn  
 275 280 285  
 Leu Thr His Glu Asp Pro Pro Leu Pro Glu Asn Pro Gln Ala Ser Ala  
 290 295 300  
 Ala Pro Leu Pro Gly Tyr Ser Arg Leu Val Val Glu Val Ala Arg Tyr  
 305 310 315 320  
 Ser Leu Ala Val Ser Glu Phe Ile Lys Leu Asn Leu Gly Ser Ile Leu  
 325 330 335  
 Ser Leu Gly Asn His Pro Ala Tyr Gly Val Asp Ile Ile Leu Asp Gly  
 340 345 350  
 Ala Lys Val Gly Arg Gly Glu Ile Ile Ala Leu Gly Asp Val Leu Gly  
 355 360 365  
 Ile Arg Val Leu Glu Val  
 370

&lt;210&gt;749

&lt;211&gt;281

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;749

Phe Met Glu Leu Lys Lys Thr Ala Glu Ser Leu Tyr Ser Ala Lys Thr  
 1 5 10 15  
 Asp Asn His Thr Val Tyr Gln Asn Ser Pro Glu Pro Arg Asp Ser Arg  
 20 25 30  
 Asp Val Lys Val Phe Ser Leu Glu Gly Lys Gln Thr Arg Gln Glu Lys

35 40 45  
 Thr Thr Ser Ser Lys Gly Asn Thr Arg Thr Glu Ser Arg Lys Phe Ala  
 50 55 60  
 Asp Glu Glu Lys Arg Val Asp Asp Glu Ile Ala Glu Val Gly Ser Lys  
 65 70 75 80  
 Glu Glu Glu Gln Glu Ser Gln Glu Phe Cys Leu Ala Glu Asn Ala Phe  
 85 90 95  
 Ala Gly Met Ser Leu Ile Asp Ile Ala Ala Ala Gly Ser Ala Glu Ala  
 100 105 110  
 Val Val Glu Val Ala Pro Ile Ala Val Ser Ser Ile Asp Thr Gln Trp  
 115 120 125  
 Ile Glu Asn Ile Ile Leu Ser Thr Val Glu Ser Met Val Ile Ser Glu  
 130 135 140  
 Ile Asn Gly Glu Gln Leu Val Glu Leu Val Leu Asp Ala Ser Ser Ser  
 145 150 155 160  
 Val Pro Glu Ala Phe Val Gly Ala Asn Leu Thr Leu Val Gln Ser Gly  
 165 170 175  
 Gln Asp Leu Ser Val Lys Phe Ser Ser Phe Val Asp Ala Thr Gln Met  
 180 185 190  
 Ala Glu Ala Ala Asp Leu Val Thr Asn Asn Pro Ser Gln Leu Ser Ser  
 195 200 205  
 Leu Val Ser Ala Leu Lys Gly His Gln Leu Thr Leu Lys Glu Phe Ser  
 210 215 220  
 Val Gly Asn Leu Leu Val Gln Leu Pro Lys Ile Glu Glu Val Gln Thr  
 225 230 235 240  
 Pro Leu His Met Ile Ala Ser Thr Ile Arg His Arg Glu Glu Lys Asp  
 245 250 255  
 Gln Arg Asp Gln Asn Gln Lys Gln Lys Gln Asp Asp Lys Glu Gln Asp  
 260 265 270  
 Ser Tyr Lys Ile Glu Glu Ala Arg Leu  
 275 280

&lt;210&gt;750

&lt;211&gt;174

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;750

Tyr Ala Val Ala Lys Tyr Pro Leu Glu Pro Val Leu Ala Ile Lys Lys  
 1 5 10 15  
 Asp Arg Val Asp Arg Ala Glu Lys Val Val Lys Glu Lys Arg Arg Leu  
 20 25 30  
 Leu Glu Ile Glu Gln Glu Lys Leu Arg Glu Lys Glu Ala Glu Arg Asp  
 35 40 45  
 Lys Val Lys Asn His Tyr Met Gln Lys Ile Gln Gln Leu Arg Asp Leu  
 50 55 60  
 Leu Asp Glu Gly Thr Thr Ser Asp Ala Val Leu Gln Ile Lys Ser Tyr  
 65 70 75 80  
 Ile Lys Val Val Ala Val Gln Leu Ser Glu Glu Glu Glu Lys Val Asn  
 85 90 95  
 Lys Gln Lys Glu Val Val Leu Ala Ala Ser Lys Glu Leu Glu Lys Ala  
 100 105 110  
 Glu Val Asn Leu Ala Lys Arg Arg Lys Glu Glu Glu Lys Thr Arg Leu  
 115 120 125  
 His Lys Glu Glu Trp Met Lys Glu Ala Leu Lys Glu Glu Val Ala Leu  
 130 135 140  
 Lys Lys Lys Asn Lys Thr Arg Trp Gly Ser Cys Phe Ser Asn Cys Ala  
 145 150 155 160  
 Arg Lys Lys Asn Val Asn Gln Gly Glu Ala Ser Ser Trp Asn  
 165 170

&lt;210&gt;751

&lt;211&gt;442

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;751

Met Asp Gln Leu Thr Thr Asp Phe Asp Thr Leu Met Ser Gln Leu Gly

1 5 10 15  
 Asp Val Asn Leu Thr Thr Val Val Gly Arg Ile Thr Glu Val Val Gly  
 20 25 30  
 Met Leu Ile Lys Ala Val Val Pro Asn Val Arg Val Gly Glu Val Cys  
 35 40 45  
 Leu Val Lys Arg Asn Gly Met Glu Pro Leu Val Thr Glu Val Val Gly  
 50 55 60  
 Phe Thr Gln Ser Phe Ala Phe Leu Ser Pro Leu Gly Glu Leu Ser Gly  
 65 70 75 80  
 Val Ser Pro Ser Ser Glu Val Ile Pro Thr Gly Leu Pro Leu His Ile  
 85 90 95  
 Arg Ala Gly Asn Gly Leu Leu Gly Arg Val Leu Asn Gly Leu Gly Glu  
 100 105 110  
 Pro Ile Asp Val Glu Thr Lys Gly Pro Leu Gln Asn Val Asp Gln Thr  
 115 120 125  
 Phe Pro Ile Phe Arg Ala Pro Pro Asp Pro Leu His Arg Ala Lys Leu  
 130 135 140  
 Arg Gln Ile Leu Ser Thr Gly Val Arg Cys Ile Asp Gly Met Leu Thr  
 145 150 155 160  
 Val Ala Arg Gly Gln Arg Ile Gly Ile Phe Ala Gly Ala Gly Val Gly  
 165 170 175  
 Lys Ser Ser Leu Leu Gly Met Ile Ala Arg Asn Ala Glu Glu Ala Asp  
 180 185 190  
 Val Asn Val Ile Ala Leu Ile Gly Glu Arg Gly Arg Glu Val Arg Glu  
 195 200 205  
 Phe Ile Glu Gly Asp Leu Gly Glu Glu Gly Met Lys Arg Ser Val Ile  
 210 215 220  
 Val Val Ser Thr Ser Asp Gln Ser Ser Gln Leu Arg Leu Asn Ala Ala  
 225 230 235 240  
 Tyr Val Gly Thr Ala Ile Ala Glu Tyr Phe Arg Asp Gln Gly Lys Thr  
 245 250 255  
 Val Val Leu Met Met Asp Ser Val Thr Arg Phe Ala Arg Ala Leu Arg  
 260 265 270  
 Glu Val Gly Leu Ala Ala Gly Glu Pro Pro Ala Arg Ala Gly Tyr Thr  
 275 280 285  
 Pro Ser Val Phe Ser Thr Leu Pro Arg Leu Leu Glu Arg Ser Gly Ala  
 290 295 300  
 Ser Asp Lys Gly Thr Ile Thr Ala Phe Tyr Thr Val Leu Val Ala Gly  
 305 310 315 320  
 Asp Asp Met Asn Glu Pro Val Ala Asp Glu Val Lys Ser Ile Leu Asp  
 325 330 335  
 Gly His Ile Val Leu Ser Asn Ala Leu Ala Gln Ala Tyr His Tyr Pro  
 340 345 350  
 Ala Ile Asp Val Leu Ala Ser Ile Ser Arg Leu Leu Thr Ala Ile Val  
 355 360 365  
 Pro Glu Glu Gln Arg Arg Ile Ile Gly Lys Ala Arg Glu Val Leu Ala  
 370 375 380  
 Lys Tyr Lys Ala Asn Glu Met Leu Ile Arg Ile Gly Glu Tyr Arg Arg  
 385 390 395 400  
 Gly Ser Asp Arg Glu Ile Asp Phe Ala Ile Asp His Ile Asp Lys Leu  
 405 410 415  
 Asn Arg Phe Leu Lys Gln Asp Ile His Glu Lys Thr Asn Tyr Glu Glu  
 420 425 430  
 Ala Ala Gln Gln Leu Arg Ala Ile Phe Arg  
 435 440  
 <210>752  
 <211>235  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>752  
 Ala Phe Lys Thr Val Lys Arg Phe Phe Cys Phe Met Ile Asp Pro Val  
 1 5 10 15  
 Glu Cys Phe Pro Asn Leu Asp Gly Asp Ala Glu Ala Gln Ser Ile Thr  
 20 25 30

Gln Asn Ser Gly Thr Pro Leu Ala Ser Glu Leu Lys Lys Asp Ile Ser  
 35 40 45  
 Pro Phe Ala Leu Gly Ser Tyr Ala Ala Pro Lys Asp Thr Thr Leu Val  
 50 55 60  
 Gln Gly Phe Lys Pro Asn Pro Met Ala Met Met Gln Asp Gln Asn Ser  
 65 70 75 80  
 Asn Leu Ile Asp Pro Glu Leu Gln Glu Ala Leu Glu Ser Glu Glu Leu  
 85 90 95  
 Gln Glu Gln Ile Asn Asn Leu Lys Gly Arg Leu Trp Asp Phe Arg Ser  
 100 105 110  
 Thr Phe Glu Asp Ser Gln Thr Thr Ala Gln Phe Ala Asp Glu His Phe  
 115 120 125  
 Gln Ala Val Gly Val Ile Ile Asp Leu Ile Asn Glu Asp Leu Asn Thr  
 130 135 140  
 Ile Ala Glu His Thr Gln Gln Asp Ala Arg Lys Glu Asp Lys Glu Glu  
 145 150 155 160  
 Gly Ser Val Thr Arg Lys Ile Ile Asp Trp Val Ser Ser Gly Glu Glu  
 165 170 175  
 Val Leu Asn Arg Ala Leu Leu Tyr Phe Ser Asp Arg Asp Gly Asn Arg  
 180 185 190  
 Glu Ser Leu Ala Asn Phe Leu Lys Val Gln Tyr Ala Val Gln Arg Ala  
 195 200 205  
 Thr Gln Arg Ala Glu Leu Phe Ala Ser Ile Val Gly Thr Ser Val Ser  
 210 215 220  
 Ser Val Lys Thr Ile Met Thr Thr Gln Leu Gly  
 225 230 235

&lt;210&gt;753

&lt;211&gt;91

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;753

Arg Ser Arg Gly Glu Lys Ser Met Ala Thr Asn Lys Ser Cys Thr Ala  
 1 5 10 15  
 Phe Asp Phe Asn Lys Met Leu Asp Gly Val Cys Thr Tyr Val Lys Gly  
 20 25 30  
 Val Gln Gln Tyr Leu Thr Glu Leu Glu Thr Ser Thr Gln Gly Thr Val  
 35 40 45  
 Asp Leu Gly Thr Met Phe Asn Leu Gln Phe Arg Met Gln Ile Leu Ser  
 50 55 60  
 Gln Tyr Met Glu Ser Val Ser Asn Ile Leu Thr Ala Val Asn Thr Glu  
 65 70 75 80  
 Met Ile Thr Met Ala Arg Ala Val Lys Gly Ser  
 85 90

&lt;210&gt;754

&lt;211&gt;102

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;754

Thr Thr Ile Asn Asn Gln Val Leu Gly Phe Ile Asn Tyr Leu Tyr Leu  
 1 5 10 15  
 Gly Arg Tyr Ser Met Phe Asn Met Glu Asn Thr Ala Lys Glu Glu Lys  
 20 25 30  
 Asn Ser Gln Pro Leu Leu Asp Leu Glu Gln Asp Met Gln Asp His Asp  
 35 40 45  
 Arg Ala Gln Glu Leu Lys Ala Ser Val Gln Asp Lys Val His Lys Leu  
 50 55 60  
 His Ala Leu Leu Arg Glu Gly Ser Asp Lys Glu Ser Phe Gly Gln Gln  
 65 70 75 80  
 Gln Ser Leu Leu Ala Gly Tyr Val Ala Leu Gln Lys Val Leu Gly Arg  
 85 90 95  
 Ile Asn Arg Lys Met Ile  
 100

&lt;210&gt;755

&lt;211&gt;440

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;755

Pro Glu Leu Ile Phe Gly Ala Glu Phe His Leu Asp Ser Gly Lys Thr  
 1 5 10 15  
 Tyr Ile Leu Gly Thr Asp Pro Thr Thr Cys Asp Ile Val Phe Asn Asp  
 20 25 30  
 Leu Ser Val Ser His Gln His Ala Lys Ile Thr Val Gly Asn Asp Gly  
 35 40 45  
 Gly Ile Leu Ile Glu Asp Leu Asp Ser Lys Asn Gly Val Ile Val Glu  
 50 55 60  
 Gly Arg Lys Ile Asp Lys Thr Ser Thr Leu Ser Ser Asn Gln Val Val  
 65 70 75 80  
 Ala Leu Gly Thr Thr Leu Phe Leu Leu Ile Asp His His Ala Pro Ala  
 85 90 95  
 Asp Thr Ile Val Ala Ser Leu Ser Pro Asp Asp Tyr Ser Leu Phe Gly  
 100 105 110  
 Arg Gln Gln Asp Ala Glu Ala Leu Glu Arg Gln Glu Ala Gln Glu Glu  
 115 120 125  
 Glu Glu Lys Gln Lys Arg Ala Thr Leu Pro Ala Gly Ser Phe Ile Leu  
 130 135 140  
 Thr Leu Phe Val Gly Gly Leu Ala Ile Leu Phe Gly Ile Gly Thr Ala  
 145 150 155 160  
 Ser Leu Phe His Thr Lys Glu Val Val Pro Leu Glu Asn Ile Asp Tyr  
 165 170 175  
 Gln Glu Asp Leu Ala Gln Val Ile Asn Gln Phe Pro Thr Val Arg Tyr  
 180 185 190  
 Thr Phe Asn Lys Thr Asn Ser Gln Leu Phe Leu Ile Gly His Val Lys  
 195 200 205  
 Asn Ser Thr Asp Lys Ser Glu Leu Leu Tyr Lys Val Asp Ala Leu Ser  
 210 215 220  
 Phe Val Lys Ser Val Asp Asp Asn Val Ile Asp Asp Glu Ala Val Trp  
 225 230 235 240  
 Gln Glu Met Asn Ile Leu Leu Ser Lys Arg Pro Glu Phe Lys Gly Ile  
 245 250 255  
 Ser Met His Ser Pro Glu Pro Gly Lys Phe Ile Ile Thr Gly Tyr Val  
 260 265 270  
 Lys Thr Glu Glu Gln Ala Ala Cys Leu Val Asp Tyr Leu Asn Ile His  
 275 280 285  
 Phe Asn Ser Leu Ser Leu Leu Glu Asn Lys Val Val Val Xaa Thr Xaa  
 290 295 300  
 Met Leu Lys Ala Ile Ala Gly His Leu Leu Gln Gly Gly Phe Ala Asn  
 305 310 315 320  
 Ile His Val Ala Phe Val Asn Gly Glu Val Ile Leu Thr Gly Tyr Val  
 325 330 335  
 Asn Asn Asp Asp Ala Glu Lys Phe Arg Ala Val Val Gln Glu Leu Ser  
 340 345 350  
 Gly Ile Pro Gly Val Arg Leu Val Lys Asn Phe Ala Val Leu Leu Pro  
 355 360 365  
 Ala Glu Glu Gly Ile Ile Asp Leu Asn Leu Arg Tyr Pro Asn Arg Tyr  
 370 375 380  
 Arg Val Thr Gly Tyr Ser Arg Tyr Gly Glu Ile Ser Ile Asn Val Val  
 385 390 395 400  
 Val Asn Gly Arg Ile Leu Thr Arg Gly Asp Val Ile Asp Gly Met Thr  
 405 410 415  
 Val Thr Ser Ile Gln Pro Asn Ala Ile Phe Leu Glu Lys Xaa Gly Leu  
 420 425 430  
 Lys Tyr Lys Ile Asp Tyr Asn Lys  
 435 440

&lt;210&gt;756

&lt;211&gt;202

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;756

Arg Thr Ser Pro Arg Gln Asp Pro Gln Pro Lys Ser Ala Glu Pro Ser  
 1 5 10 15  
 Leu Lys Asn Thr Ala Arg Asp Glu Thr Pro Leu Lys Glu Asn Lys Pro  
 20 25 30  
 Val Glu Glu Lys Ala Asn Lys Lys Ala Thr Pro Asp Ser Pro Glu Lys  
 35 40 45  
 Lys Asp Gln Pro Glu Glu Gly Ser Lys Lys Glu Gly Ser Lys Ile Glu  
 50 55 60  
 Ala Thr Pro Leu Asp Ser Gln Lys Glu Ser Glu Asp Lys Glu Ala Glu  
 65 70 75 80  
 Glu Ala Phe Val Gln Glu Glu Glu Asn Leu Thr Glu Asp Asn Lys  
 85 90 95  
 Glu Asp Ser Asp Ser Ala Ala Asp Ala Asn Asp Asp Thr Ala Ser Asp  
 100 105 110  
 His Thr Ala Glu Asp Asn Lys Glu Thr Pro Lys Lys Val Glu Asn Glu  
 115 120 125  
 Lys Ser Ala Val Leu Ser Pro Phe His Val Gln Asp Leu Phe Arg Phe  
 130 135 140  
 Asp Gln Thr Ile Phe Pro Ala Glu Ile Asp Asp Ile Ala Lys Lys Asn  
 145 150 155 160  
 Ile Ser Val Asp Leu Thr Gln Pro Ser Arg Phe Leu Leu Lys Val Leu  
 165 170 175  
 Ala Gly Ala Asn Ile Trp Ser Arg Val Pro Phe Arg Leu Arg Lys Asn  
 180 185 190  
 Leu Tyr Phe Arg Tyr Gly Ser Tyr Asn Leu  
 195 200

&lt;210&gt;757

&lt;211&gt;255

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;757

Met Ala Val Arg Leu Ile Val Asp Glu Gly Pro Leu Ser Gly Val Ile  
 1 5 10 15  
 Phe Val Leu Glu Asp Gly Ile Ser Trp Ser Ile Gly Arg Asp Ser Ser  
 20 25 30  
 Ala Asn Asp Ile Pro Ile Glu Asp Pro Lys Leu Gly Ala Ser Gln Ala  
 35 40 45  
 Ile Ile Asn Lys Thr Asp Gly Ser Tyr Tyr Ile Thr Asn Leu Asp Asp  
 50 55 60  
 Thr Ile Pro Ile Val Val Asn Gly Val Ala Ile Gln Glu Thr Thr Gln  
 65 70 75 80  
 Leu Lys Asn Glu Asp Thr Ile Leu Leu Gly Ser Asn Gln Tyr Ser Phe  
 85 90 95  
 Leu Ser Asp Glu Phe Asp Pro Gln Asp Leu Val Tyr Asp Phe Asp Ile  
 100 105 110  
 Pro Glu Glu Asn Phe Ser Asn Asp Ser Gly Asp Leu Ser Asp Ser Asn  
 115 120 125  
 Glu Gln Gly Lys Asp Leu Glu Pro Arg Gln Thr Ser Glu Thr Asn His  
 130 135 140  
 Ser Pro Lys Pro Lys Glu Lys Leu Thr Lys Asp Gln Gly Ser Ser Asp  
 145 150 155 160  
 Pro Ile Thr Ser Gly Asp Gln Glu Leu Ala Asp Ala Phe Leu Ala Ser  
 165 170 175  
 Ala Lys Ala Glu Lys Asn Gln Pro Arg Ala Lys Val Ala Lys Lys Gly  
 180 185 190  
 Leu Lys Glu Ser Ser Asn Glu Ser Leu Asn Pro Lys Glu Gln Asn Ala  
 195 200 205  
 Lys Asp Ser Pro Lys Gly Glu Arg Thr Asn Lys Pro Gln Asn Ala  
 210 215 220  
 Ile Met Glu Asp Asn Gly Leu Arg Leu Gly Lys Ile Arg Asn Gln Ser  
 225 230 235 240  
 Gln Gln Asn Pro Leu Leu Lys Thr Gln Pro Gly Met Arg Leu Pro  
 245 250 255

&lt;210&gt;758

&lt;211&gt;162

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;758

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Leu Asp Leu Lys Glu Glu Lys Ala Gly Phe Arg Asn Glu Ile Val Ser
 1          5          10          15
Ile Pro Gln Gly Thr Lys Thr Thr Ile Ala Ala Leu Glu Asn Thr Ser
          20          25          30
Met Leu Glu Lys Leu Ile Lys Asn Phe Ala Thr Tyr Met Gly Ile Thr
          35          40          45
Ser Thr Leu Glu Leu Asp Ala Asp Gly Ala Tyr Val Leu Pro Ile Ser
          50          55          60
Glu Val Val Lys Val Arg Ala Gln Gln Asn Ala Asp Asn Glu Ile Val
 65          70          75          80
Leu Ser Ala Ser Leu Gly Ala Leu Pro Pro Ser Ala Asp Thr Ala Lys
          85          90          95
Leu Tyr Leu Gln Met Met Ile Gly Asn Leu Phe Gly Arg Glu Thr Gly
          100          105          110
Gly Ser Ala Leu Gly Leu Asp Ser Glu Gly Asn Val Val Met Val Arg
          115          120          125
Arg Phe Ser Gly Asp Thr Thr Tyr Asp Asp Phe Val Arg His Val Glu
          130          135          140
Ser Phe Met Asn Phe Ser Glu Thr Trp Leu Ser Asp Leu Gly Leu Gly
145          150          155          160
Lys Gln

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&lt;210&gt;759

&lt;211&gt;341

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;759

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Val Leu Met Val Leu Gly Val Val Gly Ile Ser Tyr Arg Glu Ala Ala
 1          5          10          15
Leu Lys Glu Arg Glu Arg Ala Ile Gln Tyr Leu Gln Ser Phe Glu Lys
          20          25          30
Asn Leu Phe Leu Ala Gln Arg Phe Leu Gly Lys Gly Ala Phe Ile
          35          40          45
Pro Leu Leu Thr Cys His Arg Ala Glu Leu Tyr Tyr Tyr Ser Glu Ser
          50          55          60
Pro Glu Ile Ala Gln Ala Ala Leu Leu Ser Glu Leu Thr Ser Gln Gly
 65          70          75          80
Ile Arg Pro Tyr Arg His Arg Gly Leu Ser Cys Phe Thr His Leu Phe
          85          90          95
Gln Val Thr Ser Gly Ile Asp Ser Leu Ile Phe Gly Glu Thr Glu Ile
          100          105          110
Gln Gly Gln Val Lys Arg Ala Tyr Leu Lys Gly Ser Lys Glu Arg Glu
          115          120          125
Leu Pro Phe Asp Leu His Phe Leu Phe Gln Lys Ala Leu Lys Glu Gly
          130          135          140
Lys Glu Tyr Arg Ser Arg Ile Gly Phe Pro Asp His Gln Val Thr Ile
145          150          155          160
Glu Ser Val Val Gln Glu Ile Leu Leu Ser Tyr Asp Lys Ser Ile Tyr
          165          170          175
Thr Asn Phe Leu Phe Val Gly Tyr Ser Asp Ile Asn Arg Lys Val Ala
          180          185          190
Ala Tyr Leu Tyr Gln His Gly Tyr His Arg Ile Thr Phe Cys Ser Arg
          195          200          205
Gln Gln Val Thr Ala Pro Tyr Arg Thr Leu Ser Arg Glu Thr Leu Ser
          210          215          220
Phe Arg Gln Pro Tyr Asp Val Ile Phe Phe Gly Ser Ser Glu Ser Ala
225          230          235          240
Ser Gln Phe Ser Asp Leu Ser Cys Glu Ser Leu Ala Ser Ile Pro Lys
          245          250          255
Arg Ile Val Phe Asp Phe Asn Val Pro Arg Thr Phe Leu Trp Lys Glu

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260 265 270  
 Thr Pro Thr Gly Phe Val Tyr Leu Asp Ile Asp Phe Ile Ser Glu Cys  
 275 280 285  
 Val Gln Lys Arg Leu Gln Cys Thr Lys Glu Gly Val Asn Lys Ala Lys  
 290 295 300  
 Leu Leu Leu Thr Cys Ala Ala Lys Lys Gln Trp Glu Ile Tyr Glu Lys  
 305 310 315 320  
 Lys Ser Ser His Ile Thr Gln Arg Gln Ile Ser Ser Pro Arg Ile Pro  
 325 330 335  
 Ser Val Leu Ser Tyr  
 340  
 <210>760  
 <211>426  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>760  
 Met Ala Ala Tyr Thr Glu Ala Ser Ile Leu Ser Leu Ala Ser Leu Asp  
 1 5 10 15  
 His Ile Arg Leu Arg Ala Gly Met Tyr Ile Gly Arg Leu Gly Asn Gly  
 20 25 30  
 Ser Gln Lys Glu Asp Gly Ile Tyr Thr Leu Phe Lys Glu Val Val Asp  
 35 40 45  
 Asn Gly Ile Asp Glu Phe Ile Met Gly His Gly Lys Ser Leu Lys Ile  
 50 55 60  
 Ser Ala Ser Asp Lys Gln Ile Ser Ile Gln Asp Gln Gly Arg Gly Ile  
 65 70 75 80  
 Pro Leu Gly Lys Leu Ile Asp Cys Val Ser Lys Ile Asn Thr Gly Ala  
 85 90 95  
 Lys Tyr Thr Gln Asp Val Phe His Phe Ser Val Gly Leu Asn Gly Val  
 100 105 110  
 Gly Leu Lys Ala Val Asn Ala Leu Ser Glu Ile Phe Ser Val Arg Ser  
 115 120 125  
 Val Arg Lys Lys Lys Tyr His Leu Ala Thr Phe His Arg Gly Val Leu  
 130 135 140  
 Gln Glu Ser Lys Gln Gly Ser Thr Lys Asp Pro Asp Gly Thr Phe Val  
 145 150 155 160  
 Ser Phe Thr Pro Asp Pro Ser Ile Phe Pro Glu Phe Thr Phe Asn His  
 165 170 175  
 Asp Phe Leu Lys Asp Lys Ile Arg Gln Tyr Thr Tyr Leu His Ser Gly  
 180 185 190  
 Leu Glu Ile Arg Phe Asn Asp Glu Val Phe Ile Ser His Asn Gly Leu  
 195 200 205  
 Lys Asp Leu Phe Asp Ala Glu Ile Thr Glu Pro Pro Leu Tyr Ser Pro  
 210 215 220  
 Leu Phe Phe Gln Asn Glu Asp Leu Thr Phe Ile Phe Ser His Leu Glu  
 225 230 235 240  
 Gly Asn Thr Glu Arg Tyr Phe Ser Phe Val Asn Gly Gln Glu Thr Leu  
 245 250 255  
 Asp Gly Gly Thr His Leu Thr Ala Phe Lys Glu Ala Ile Val Lys Gly  
 260 265 270  
 Val Asn Glu Phe Phe Gly Lys Thr Phe Val Ser Asn Asp Ile Arg Glu  
 275 280 285  
 Gly Ile Val Gly Cys Ile Ala Ile Lys Ile Ala Ser Pro Ile Phe Glu  
 290 295 300  
 Ser Gln Thr Lys Asn Lys Leu Gly Asn Thr Gln Ile Arg Ser Ser Leu  
 305 310 315 320  
 Ile Lys Asp Val Lys Glu Ala Ile Val Gln Ala Leu Arg Lys Asp Lys  
 325 330 335  
 Val Ala Pro Glu Leu Leu Leu Glu Lys Ile Lys Phe Asn Glu Lys Thr  
 340 345 350  
 Arg Lys Asn Ile Gln Phe Ile Lys Gln Asp Leu Lys Ser Lys Gln Lys  
 355 360 365  
 Lys Val His Tyr Lys Ile Pro Lys Leu Arg Asp Cys Lys Phe His Tyr  
 370 375 380

Asn Asp Arg Ser Leu Tyr Gly Glu Ala Ser Ser Ile Phe Leu Thr Glu  
 385 390 395 400  
 Gly Ser Leu Arg Pro His Gln Phe Leu Leu Gln Glu Ile Pro Ser His  
 405 410 415  
 Lys Leu Ser Phe His Phe Glu Glu Ser Leu  
 420 425

&lt;210&gt;761

&lt;211&gt;125

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;761

Trp Thr Phe Phe Cys Leu Leu Leu Arg Ser Cys Phe Ile Asn Trp Ile  
 1 5 10 15  
 Phe Phe Arg Val Phe Ser Leu Asn Phe Ile Phe Ser Lys Arg Ser Ser  
 20 25 30  
 Gly Ala Thr Leu Ser Leu Arg Arg Ala Cys Thr Ile Ala Ser Phe Thr  
 35 40 45  
 Ser Leu Ile Lys Glu Asp Arg Ile Cys Val Phe Pro Ser Leu Phe Phe  
 50 55 60  
 Val Cys Asp Ser Lys Ile Gly Glu Ala Ile Phe Ile Ala Met Gln Pro  
 65 70 75 80  
 Thr Met Pro Ser Arg Met Ser Leu Glu Thr Asn Val Phe Pro Lys Asn  
 85 90 95  
 Ser Leu Thr Pro Phe Thr Met Ala Ser Leu Lys Ala Val Arg Cys Val  
 100 105 110  
 Pro Pro Ser Arg Val Ser Cys Pro Leu Thr Lys Glu Lys  
 115 120 125

&lt;210&gt;762

&lt;211&gt;210

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;762

Gly Leu Phe Asp Phe Pro Tyr Arg Arg Glu Ser Ala Ser Ala Ser Ile  
 1 5 10 15  
 Leu Ala Ser Arg Asn Pro Leu Thr Gln Ala Val Phe Ser Leu Arg Gly  
 20 25 30  
 Lys Pro Met Asn Val Phe Ser Leu Glu Glu Thr Lys Met Tyr Lys Asn  
 35 40 45  
 Asp Glu Leu Phe Tyr Leu Ala Thr Ala Leu Gly Ile Thr Gln Asn Glu  
 50 55 60  
 Ile Gln His Leu Arg Tyr Asn Lys Val Ile Leu Ala Thr Asp Ala Asp  
 65 70 75 80  
 Val Asp Gly Met His Ile Arg Asn Leu Leu Ile Thr Phe Phe Leu Lys  
 85 90 95  
 Thr Leu Leu Pro Leu Val Glu Asn Asn His Leu Phe Ile Leu Glu Thr  
 100 105 110  
 Pro Leu Phe Lys Val Arg Asn Lys Thr Thr Thr Leu Tyr Tyr Tyr Ser  
 115 120 125  
 Glu Gln Glu Lys Met Gln Ala Leu Gln Gln Phe Gly Lys Lys Asp Ser  
 130 135 140  
 Ser Leu Glu Ile Thr Arg Phe Lys Gly Leu Gly Glu Ile Ser Pro Lys  
 145 150 155 160  
 Glu Phe Ala Ala Phe Ile Gly Pro Glu Ile Arg Leu Thr Pro Val Thr  
 165 170 175  
 Ile Thr Ser Leu Glu Ser Ile Ser Ser Ile Leu Gln Phe Tyr Met Gly  
 180 185 190  
 Lys Asn Thr Lys Glu Arg Lys Gln Phe Ile Met Asp Asn Leu Ile Thr  
 195 200 205

Asp Phe

210

&lt;210&gt;763

&lt;211&gt;479

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;763

Phe Met Arg Asp Val Ser Glu Leu Phe Arg Thr His Phe Met His Tyr  
 1 5 10 15  
 Ala Ser Tyr Val Ile Leu Glu Arg Ala Ile Pro His Ile Leu Asp Gly  
 20 25 30  
 Leu Lys Pro Val Gln Arg Arg Leu Trp Thr Leu Phe Leu Met Asp  
 35 40 45  
 Asp Gly Lys Met His Lys Val Ala Asn Ile Ala Gly Arg Thr Met Ala  
 50 55 60  
 Leu His Pro His Gly Asp Ala Pro Ile Val Glu Ala Leu Val Val Leu  
 65 70 75 80  
 Ala Asn Lys Gly Tyr Leu Ile Asp Thr Gln Gly Asn Phe Gly Asn Pro  
 85 90 95  
 Leu Thr Gly Asp Pro His Ala Ala Arg Tyr Ile Glu Ala Arg Leu  
 100 105 110  
 Ser Pro Leu Ala Arg Glu Thr Leu Phe Asn Thr Asp Leu Ile Ala Phe  
 115 120 125  
 His Asp Ser Tyr Asp Gly Arg Glu Lys Glu Pro Asp Ile Leu Pro Ala  
 130 135 140  
 Lys Leu Pro Val Leu Leu His Gly Val Asp Gly Ile Ala Val Gly  
 145 150 155 160  
 Met Thr Thr Lys Ile Phe Pro His Asn Phe Ala Glu Leu Leu Lys Ala  
 165 170 175  
 Gln Ile Ala Ile Leu Asn Asp Lys Lys Phe Thr Val Phe Pro Asp Phe  
 180 185 190  
 Pro Ser Gly Gly Leu Met Asp Pro Ser Glu Tyr Gln Asp Gly Leu Gly  
 195 200 205  
 Ser Ile Thr Leu Arg Ala Ser Ile Asp Ile Ile Asn Asp Lys Thr Leu  
 210 215 220  
 Val Val Lys Gln Ile Cys Pro Gln Ser Thr Thr Glu Thr Leu Ile Arg  
 225 230 235 240  
 Ser Ile Glu Asn Ala Ala Lys Arg Gly Thr Ile Lys Ile Asp Thr Ile  
 245 250 255  
 Gln Asp Phe Ser Thr Asp Val Pro His Ile Glu Ile Lys Leu Pro Lys  
 260 265 270  
 Gly Ser Arg Ala Lys Glu Met Leu Pro Leu Leu Phe Glu His Thr Glu  
 275 280 285  
 Cys Gln Val Ile Leu Tyr Ser Lys Pro Thr Val Ile Tyr Glu Asn Lys  
 290 295 300  
 Pro Val Glu Cys Ser Ile Ser Glu Ile Leu Lys Leu His Thr Thr Ala  
 305 310 315 320  
 Leu Gln Gly Tyr Leu Glu Lys Glu Leu Leu Leu Gln Glu Gln Leu  
 325 330 335  
 Thr Leu Asp His Tyr His Lys Thr Leu Glu Tyr Ile Phe Ile Lys His  
 340 345 350  
 Lys Leu Tyr Asp Ser Val Arg Glu Val Leu Ala Ile Asn Lys Lys Ile  
 355 360 365  
 Ser Ala Asp Asp Leu His Gln Ala Val Leu His Ala Leu Glu Pro Trp  
 370 375 380  
 Leu His Glu Leu Ala Thr Pro Val Thr Lys Gln Asp Thr Ser Gln Leu  
 385 390 395 400  
 Ala Ser Leu Thr Ile Lys Lys Ile Leu Cys Phe Asn Glu Glu Ala Cys  
 405 410 415  
 Thr Lys Glu Leu Leu Ala Ile Glu Lys Lys Gln Ala Ala Ile Gln Lys  
 420 425 430  
 Asp Leu Gly Arg Ile Lys Glu Val Thr Val Lys Tyr Leu Lys Gly Leu  
 435 440 445  
 Leu Glu Arg His Gly His Leu Gly Glu Arg Lys Thr Gln Ile Thr Asn  
 450 455 460  
 Phe Lys Thr Ala Lys Thr Ser Ile Leu Lys Gln Gln Thr Leu Ile  
 465 470 475

&lt;210&gt;764

&lt;211&gt;109

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;764

Arg Ala Val Met Ser Phe Thr Tyr Phe Leu Ala Leu Pro Val Asp Arg  
 1 5 10 15  
 Leu Met Gln Glu Arg Phe Leu Cys Ser Pro Lys Arg Trp Ala Pro Phe  
 20 25 30  
 Ile Asn Ser Pro Leu Tyr Leu Thr Leu Ile Ala Asp His Asp Thr Pro  
 35 40 45  
 Tyr Leu Ala Lys Asn Leu Asp Lys Phe Pro Leu Pro Val Glu Gln Trp  
 50 55 60  
 Glu Lys Thr Val Leu His Val Ser Ser Leu Leu Lys Ser Ile Phe Leu  
 65 70 75 80  
 Cys Ser Asp Leu Ser Ser Leu Arg Leu Leu Ala Cys Thr Lys Phe Glu  
 85 90 95  
 Ile Leu Thr Leu Asn Asp Leu Tyr Cys Ala Gln Asn Ile  
 100 105

&lt;210&gt;765

&lt;211&gt;325

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;765

Met Lys Thr Val Thr Ser Phe Thr Val Cys Lys Glu Asn Ser Gly Arg  
 1 5 10 15  
 Leu Asp Lys Tyr Leu Thr Glu Val His Pro Lys Tyr Ser Arg Ala Phe  
 20 25 30  
 Tyr Gln Glu His Ile Leu Ser Gly Leu Val Gln Ile Asn Gly Gln Ile  
 35 40 45  
 Asn Thr Arg Val Ala Thr Arg Leu Asn Cys Gly Asp Ile Val Thr Ile  
 50 55 60  
 Asp Ile Gln Glu Lys Glu Glu Leu Leu Glu Leu Pro Glu Ala Ile  
 65 70 75 80  
 Pro Leu Asp Lys Val Tyr Glu Asp Gly Met Ile Leu Val Ile Asn Lys  
 85 90 95  
 Pro Arg Asp Met Val Val His Pro Ala Pro Gly His Phe His Gly Thr  
 100 105 110  
 Leu Val His Ala Leu Leu His Glu Ile Gly Glu Arg Leu Lys Glu Glu  
 115 120 125  
 Phe Pro Glu Glu Pro Trp Arg Pro Gly Ile Val His Arg Leu Asp Lys  
 130 135 140  
 Asp Thr Ser Gly Leu Ile Ile Thr Ala Lys Thr Arg Gln Ala Lys Lys  
 145 150 155 160  
 Val Phe Ser Glu Leu Phe Ser Thr Lys Arg Leu Lys Lys Ser Tyr Leu  
 165 170 175  
 Ala Val Cys Ile Gly Lys Pro Arg Ser Thr Thr Ile His Thr His Ile  
 180 185 190  
 Ser Arg His Gln Asn Lys Arg Lys Glu Met Thr Val Ser Ser Gln Gly  
 195 200 205  
 Lys Glu Ala Val Thr His Cys Gln Val Leu Ala Phe Asn Gly Lys Leu  
 210 215 220  
 Ser Phe Val Ala Leu Ser Pro Glu Thr Gly Arg Thr His Gln Leu Arg  
 225 230 235 240  
 Val His Met Lys His Leu Gly Thr Pro Ile Leu Gly Asp Pro Val Tyr  
 245 250 255  
 Gly Ile Pro Ser Met Asn Ser Ser Tyr Gly Leu Asp Lys Gln Gln Leu  
 260 265 270  
 His Ala Tyr Ser Val Asp Phe Thr His Pro Glu Thr Arg Gln Phe Cys  
 275 280 285  
 Ser Leu Lys Ala Gly Leu Pro Glu Asp Met Arg Ser Leu Leu Ile Lys  
 290 295 300  
 Glu Phe Arg Asn Glu Thr Thr Ile Leu Asn Lys Asn Leu Leu Glu Ser  
 305 310 315 320  
 Ile Leu Lys Glu Gln  
 325

&lt;210&gt;766

&lt;211&gt;82

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;766

Leu Arg Ile Thr Met Lys Glu Phe Leu Ala Tyr Ile Ile Lys Asn Leu  
 1 5 10 15  
 Val Asp Arg Pro Glu Glu Val Arg Ile Lys Glu Val Gln Gly Thr His  
 20 25 30  
 Thr Ile Ile Tyr Glu Leu Ser Val Ala Lys Pro Asp Ile Gly Lys Ile  
 35 40 45  
 Ile Gly Lys Glu Gly Arg Thr Ile Lys Ala Ile Arg Thr Leu Leu Val  
 50 55 60  
 Ser Val Ala Ser Arg Asn Asn Val Arg Val Ser Leu Glu Ile Met Glu  
 65 70 75 80  
 Glu Lys

&lt;210&gt;767

&lt;211&gt;273

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;767

Lys Arg Met Val Met Phe Asn Asn Lys Met Ile Leu Ile Ala Gly Pro  
 1 5 10 15  
 Cys Val Ile Glu Gly Glu Asp Ile Thr Leu Glu Ile Ala Gly Lys Leu  
 20 25 30  
 Gln Ser Ile Leu Ala Pro Tyr Ser Asp Arg Ile Gln Trp Phe Phe Lys  
 35 40 45  
 Ser Ser Tyr Asp Lys Ala Asn Arg Ser Ser Leu Asn Ser Phe Arg Gly  
 50 55 60  
 Pro Gly Leu Thr Glu Gly Leu Arg Ile Leu Ala Lys Val Lys Glu Thr  
 65 70 75 80  
 Phe Gly Val Gly Ile Leu Thr Asp Val His Thr Pro Gln Asp Ala Tyr  
 85 90 95  
 Ala Ala Ala Glu Val Cys Asn Ile Leu Gln Val Pro Ala Phe Leu Cys  
 100 105 110  
 Xaa Gln Thr Asp Leu Leu Val Ala Thr Ala Glu Thr Gly Ala Ile Val  
 115 120 125  
 Asn Leu Lys Lys Gly Gln Phe Leu Ser Pro Trp Asp Met Glu Gly Pro  
 130 135 140  
 Ile Asn Lys Val Leu Ser Thr Gly Asn Asn Lys Ile Leu Leu Thr Glu  
 145 150 155 160  
 Arg Gly Cys Ser Phe Gly Tyr Asn Asn Leu Val Ser Asp Met Arg Ser  
 165 170 175  
 Ile Pro Val Leu Ser Arg Ser Gly Phe Pro Val Ile Phe Asp Ala Thr  
 180 185 190  
 His Ser Val Gln Leu Pro Gly Ala Leu Ser Thr Glu Ser Gly Gly Leu  
 195 200 205  
 Thr Glu Phe Val Pro Thr Leu Ser Arg Ala Ala Leu Ala Ala Gly Ala  
 210 215 220  
 His Gly Leu Phe Ile Glu Thr His Thr Asn Pro Lys Ile Ala Lys Ser  
 225 230 235 240  
 Asp Ala Ala Ser Met Leu Ser Leu Glu Glu Phe Ala Ala Leu Leu Pro  
 245 250 255  
 Thr Trp Asp Gln Leu Phe Thr Cys Val Ser Ser Phe Asp Met Val Ser  
 260 265 270  
 Ala

&lt;210&gt;768

&lt;211&gt;162

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;768

Met Thr Lys Phe Leu Tyr Cys Gly Leu Phe Tyr Ser Leu Gly Leu Leu  
 1 5 10 15

Val Leu Ala Phe Gly Thr Met Val Ala Ile Ile Gln Val Asp Gln Ile  
 20 25 30  
 Cys Asp Val Ser Cys Met Asn Lys His Phe Gln Glu Ser Pro Pro Phe  
 35 40 45  
 Leu Lys Ile Lys Lys Val Asn Val Ser Lys Gln Ile Cys Ser Pro Glu  
 50 55 60  
 Glu Arg Phe Phe His Cys Lys Ile Asp Lys Ser Cys Met Glu Leu His  
 65 70 75 80  
 Phe Pro Gln Ser Ser Tyr Ser Cys Lys Glu Tyr Leu Thr Arg Ile Ser  
 85 90 95  
 Gly His Ile Leu Thr Gln Asn Phe Glu Lys Gln Met Gln Phe Arg Gly  
 100 105 110  
 Asn Ser Gly Leu Leu Asn Tyr Gln Asp Gly Ser Leu His Val Tyr Asp  
 115 120 125  
 Cys Arg Phe Gln Val Asp Pro Val Pro Gly Tyr Gly Ser Pro Asp Lys  
 130 135 140  
 Glu Asp Ser Ser Ser Gly Gly Met Lys Thr Leu Tyr Leu Ser Leu Phe  
 145 150 155 160  
 Arg Asn

&lt;210&gt;769

&lt;211&gt;240

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;769

Met Pro Ile Leu Ser Val Cys Asn Leu Val Lys Lys Tyr Asn Lys Lys  
 1 5 10 15  
 Pro Val Thr Asn Asp Val Ser Phe Gln Ile Asn Pro Gly Glu Ile Val  
 20 25 30  
 Gly Leu Leu Gly Pro Asn Gly Ala Gly Lys Thr Thr Ala Phe Tyr Leu  
 35 40 45  
 Thr Val Gly Leu Ile Arg Pro Asp Ser Gly Lys Ile Ile Phe Lys Asn  
 50 55 60  
 Val Asp Val Thr Lys Lys Thr Met Asp His Arg Ala Arg Leu Gly Ile  
 65 70 75 80  
 Gly Tyr Leu Ala Gln Glu Pro Thr Ile Phe Lys Glu Leu Thr Val Gln  
 85 90 95  
 Asp Asn Leu Ile Cys Ile Leu Glu Ile Ile Tyr Lys Ala Arg Lys Gln  
 100 105 110  
 Gln Ser His Leu Leu Asn Thr Leu Val Asp Asp Leu Gln Leu Gly Ser  
 115 120 125  
 Cys Leu His Lys Lys Ala Gly Thr Leu Ser Gly Gly Glu Arg Arg Arg  
 130 135 140  
 Leu Glu Ile Ala Cys Val Leu Ala Leu Asn Pro Ser Val Leu Leu Leu  
 145 150 155 160  
 Asp Glu Pro Phe Ala Asn Val Asp Pro Leu Val Ile Gln Asn Val Lys  
 165 170 175  
 Tyr Leu Ile Lys Ile Leu Ala Gly Arg Gly Ile Gly Ile Leu Ile Thr  
 180 185 190  
 Asp His Asn Ala Lys Glu Leu Leu Ser Ile Ala Asp Arg Cys Tyr Leu  
 195 200 205  
 Ile Ile Asp Gly Lys Ile Phe Phe Glu Gly Ser Ser Ser Gln Met Ile  
 210 215 220  
 Ser Asn Pro Met Val Lys Gln His Tyr Leu Gly Asp Ser Phe Ser Tyr  
 225 230 235 240

&lt;210&gt;770

&lt;211&gt;299

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;770

Arg Thr Ser Thr Arg Leu Asp Tyr Arg Ser Gly Cys Ile Leu Ser Lys  
 1 5 10 15  
 Ile Leu Pro Phe Pro Glu Leu Trp Lys Met Leu Leu Gly Phe Leu Cys  
 20 25 30

Asp Cys Pro Cys Ala Ser Trp Gln Cys Ala Ala Val Ala Asn Cys Tyr  
           35                          40                          45  
 Asp Ser Val Phe Met Ser Arg Pro Glu His Lys Pro Asn Ile Pro Tyr  
           50                          55                          60  
 Ile Thr Lys Ala Thr Arg Arg Gly Leu Arg Met Lys Thr Leu Ala Tyr  
           65                          70                          75                          80  
 Leu Ala Ser Leu Lys Asp Ala Arg Gln Leu Ala Tyr Asp Phe Leu Lys  
                           85                          90                          95  
 Asp Pro Gly Ser Leu Ala Arg Leu Ala Lys Ala Leu Ile Ala Pro Lys  
                           100                          105                          110  
 Glu Ala Leu Gln Glu Gly Asn Leu Phe Phe Tyr Gly Cys Ser Asn Ile  
                           115                          120                          125  
 Glu Asp Ile Leu Glu Glu Met Arg Arg Pro His Arg Ile Leu Leu Leu  
                           130                          135                          140  
 Gly Phe Ser Tyr Cys Gln Lys Pro Lys Ala Cys Pro Glu Gly Arg Phe  
                           145                          150                          155                          160  
 Asn Asp Ala Cys Arg Tyr Asp Pro Ser His Pro Thr Cys Ala Ser Cys  
                           165                          170                          175  
 Ser Ile Gly Thr Met Met Arg Leu Asn Ala Arg Arg Tyr Thr Thr Val  
                           180                          185                          190  
 Ile Ile Pro Thr Phe Ile Asp Ile Ala Lys His Leu His Thr Leu Lys  
                           195                          200                          205  
 Lys Arg Tyr Pro Gly Tyr Gln Ile Leu Phe Ala Val Thr Ala Cys Glu  
                           210                          215                          220  
 Leu Ser Leu Lys Met Phe Gly Asp Tyr Ala Ser Val Met Asn Leu Lys  
                           225                          230                          235                          240  
 Gly Val Gly Ile Arg Leu Thr Gly Arg Ile Cys Asn Thr Phe Lys Ala  
                           245                          250                          255  
 Phe Lys Leu Ala Glu Arg Gly Val Lys Pro Gly Val Thr Ile Leu Glu  
                           260                          265                          270  
 Glu Asp Gly Phe Glu Val Leu Ala Arg Ile Leu Thr Glu Tyr Ser Ser  
                           275                          280                          285  
 Ala Pro Phe Pro Arg Asp Phe Cys Glu Ile His  
                           290                          295  
 <210>771  
 <211>438  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>771  
 Val Tyr Lys Ser Leu Val Thr Phe Lys Cys Gly Glu His Leu Gly Ala  
           1                          5                          10                          15  
 Ile Trp Ala Tyr Phe Thr Ala Ser Thr Val Val Ala Leu Asn Pro Thr  
                           20                          25                          30  
 Ala Thr Met Asp His Val Lys Ala Ala Ile Leu Glu Glu Ala Lys Glu  
                           35                          40                          45  
 Leu Asp Asn Ser Ser Phe Gln Leu Ala Ser Ser Ile Lys Ser Ala Met  
                           50                          55                          60  
 Thr Ser Ile Val Asn Ser Ser Gly Ser Phe Ser Val Thr Val Asn Ser  
                           65                          70                          75                          80  
 Ser Thr Leu Gln Tyr Thr Ile Tyr Ser Glu Lys Asn Gly Lys Val Glu  
                           85                          90                          95  
 Ile Asn Gln Ile Leu Leu Asn Tyr Gly Ser Thr Gly Phe Leu Pro Glu  
                           100                          105                          110  
 Ile Thr Lys Leu Ala Lys Thr Asn Ala Glu Ser Thr Ala Arg Ser Tyr  
                           115                          120                          125  
 Phe Arg Phe Lys Ala Leu Ala Ala Val Glu Ser Glu Asn Val Gln Asn  
                           130                          135                          140  
 Lys Ile Glu Asp Leu Gln Ser Gln Leu Gln Gln Phe Thr Asn Met Lys  
                           145                          150                          155                          160  
 Thr Glu Leu Phe Asp Gly Gln Leu Leu Ser Gln Ala Ser Glu Leu Arg  
                           165                          170                          175  
 Ala Leu Pro Leu Leu Ser Ala Val Ala Ser Val Leu Ile Asp Arg Tyr  
                           180                          185                          190  
 Met Pro Lys Glu Val Asp Tyr Leu Asn Glu Ile Tyr Lys Lys Leu Tyr

195 200 205  
 Tyr Ser Asn Leu Gly Ser Ser Val Gly Asn Ser Ile Ile Asp Ala Ile  
 210 215 220  
 Ser Gln Tyr Val Asn Gly Ala Thr Tyr Phe Asn Phe Ala Ser Tyr Val  
 225 230 235 240  
 Gly Gln Gln Pro Ala Val Gly Ala Gly Gly Ala Asn Ala Phe Pro Gly  
 245 250 255  
 Ser Gln Glu Ser Ala Gln Ala Lys Leu Asp Gln Glu Arg Lys Gln Ala  
 260 265 270  
 Ala Leu Tyr Leu Gln Glu Thr Arg Gly Ala Leu Thr Val Ile Glu Glu  
 275 280 285  
 Gln Arg Ala Arg Val Leu Lys Asp Asp Lys Ile Thr Asn Glu Gln Arg  
 290 295 300  
 Ser Thr Ile Leu Asp Ser Leu Arg Asn Tyr Glu Asp Asn Ile Asn Ser  
 305 310 315 320  
 Ile Ser Gly Ser Leu Val Leu Leu Gln Asn Tyr Leu Gln Pro Leu Ser  
 325 330 335  
 Ile Ala Gly Gly Ser Val Ala Gly Thr Phe Glu Val Lys Glu Gly Gln  
 340 345 350  
 Glu Gln Trp Gln Ala Arg Leu Gln Ile Leu Glu Glu Ala Leu Val Ser  
 355 360 365  
 Gly Leu Val Gly Asn Met Ile Asn Gly Gly Met Phe Pro Leu Gln Ser  
 370 375 380  
 Thr Ile Gln Ser Asp Gln Gln Ser Phe Ala Asp Met Gly Gln Asn Phe  
 385 390 395 400  
 Gln Leu Asp Leu Gln Met His Leu Thr Ser Met Gln Gln Glu Trp Thr  
 405 410 415  
 Val Val Ala Thr Ser Leu Gln Leu Leu Asn Gln Met Tyr Leu Ser Leu  
 420 425 430  
 Ala Arg Ser Leu Thr Gly  
 435

&lt;210&gt;772

&lt;211&gt;422

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;772

Ala Asp Ile Asp Met Ile Tyr Ser Thr Ser Ile Ser Thr Phe Tyr Lys  
 1 5 10 15  
 Lys Leu Ser Leu Val Ser Ser Met His Ser Phe Ala Gln Arg His Arg  
 20 25 30  
 Glu Ser Leu Glu His Ile Ala Asn Tyr Glu Lys Thr Thr Ala Glu Arg  
 35 40 45  
 Asp Ile Leu Lys Arg Leu Ile Glu Val Leu Asp Gln Arg Ala Ser Glu  
 50 55 60  
 Arg Tyr Arg Ser Ala Val Glu Lys Leu His Lys Tyr Glu Val Glu Arg  
 65 70 75 80  
 Ala Thr Val Ala Lys Ser Ile Pro Val Ala Ala Ile His Glu Lys Pro  
 85 90 95  
 Leu Ser Ser Thr His Ala Ser Val Gln Val Thr Ala Ser Thr Pro Ala  
 100 105 110  
 Ala Thr Gly Ser Gly Val Gly Ala Tyr Tyr Asn Ala Val Lys Gln Lys  
 115 120 125  
 Trp Ala Gln Asp Leu Ile Val Glu Leu Asn Thr Val Met Thr Thr Ile  
 130 135 140  
 Met Ala Ser Val Asn Ser Lys Asn Pro Ala Asn Lys Asp Val Phe Asp  
 145 150 155 160  
 Lys Leu Asn Thr Glu Leu Gln Ala Leu Val Ala Ala Gly Asn Asn Leu  
 165 170 175  
 Thr Glu Glu Asn Phe Gln Thr Leu Tyr Asn Phe Pro Glu Glu Ile Phe  
 180 185 190  
 Thr Ala Ile Gln Arg Ala Asp Thr Phe Thr Gly Gly Met Lys Thr Asp  
 195 200 205  
 Phe Thr Asn Gln Leu Ala Gly Lys Tyr Gly Asn Gln Ala Thr Leu Thr  
 210 215 220



Ser Ser Tyr Leu Val Gln Ser Lys Thr Gly Gln Asn Leu Phe Ala Gly  
 85 90 95  
 Asp Tyr Tyr Glu Thr Leu Leu Ala Ala Arg Glu Arg Glu Tyr Ile  
 100 105 110  
 Tyr Arg Asp Thr Ala Arg Cys Lys Gln Ala Ile Asn Leu Val Asn Gly  
 115 120 125  
 Leu Leu Gln Lys Ile Asn Ser Leu Pro Gly Ala Thr Ser Ala Gln Lys  
 130 135 140  
 Gln Glu Met Leu Asn Ala Thr Thr Tyr Tyr Gln Tyr Ser Leu Ser Val  
 145 150 155 160  
 Thr Leu Asn Gln Leu Thr Val Leu Glu Ser Leu Leu Ala Gly Leu Lys  
 165 170 175  
 Met Thr Leu Gln Thr Thr Ser Asn Asn Lys Tyr Asp Lys Ser Val Phe  
 180 185 190  
 Lys Ile Glu Ser Phe Asp Asp Trp Ile Pro Thr Leu Ala Ala Leu Glu  
 195 200 205  
 Ser Phe Leu Thr Ser Gly Phe Pro Asn Ile Ser Ala Thr Gly Gly Leu  
 210 215 220  
 Gly Pro Leu Phe Thr Gln Val Gln Ser Asp Gln Gln Thr Tyr Thr Ser  
 225 230 235 240  
 Gln Gly Gln Thr Gln Gln Leu Asn Leu Gln Asn Gln Met Thr Thr Ile  
 245 250 255  
 Gln Gln Glu Trp Thr Leu Val Ser Thr Ser Met Gln Val Leu Asn Gly  
 260 265 270  
 Ile Leu Ser Gln Leu Ala Gly Ala Ile Tyr Ser Asn  
 275 280

&lt;210&gt;775

&lt;211&gt;212

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;775

Asp Arg Ser Leu Leu Leu Leu Phe Val Ser Ala Gly Val Pro Pro Ala  
 1 5 10 15  
 Ala Ala Ser Ser Ile Gly Ser Ser Val Asn Gln Leu Tyr Lys Thr Ser  
 20 25 30  
 Lys Ser Thr Gly Ser Asp Tyr Lys Thr Gln Ile Ser Ala Gly Tyr Asp  
 35 40 45  
 Ala Tyr Lys Ser Ile Asn Asp Ala Tyr Gly Arg Ala Arg Asn Asp Ala  
 50 55 60  
 Thr Arg Asp Val Ile Asn Asn Val Ser Thr Pro Ala Leu Thr Arg Ser  
 65 70 75 80  
 Val Pro Arg Ala Arg Thr Glu Ala Arg Gly Pro Glu Lys Thr Asp Gln  
 85 90 95  
 Ala Leu Ala Arg Val Ile Ser Gly Asn Ser Arg Thr Leu Gly Asp Val  
 100 105 110  
 Tyr Ser Gln Val Ser Ala Leu Gln Ser Val Met Gln Ile Ile Gln Ser  
 115 120 125  
 Asn Pro Gln Ala Asn Asn Glu Glu Ile Arg Gln Lys Leu Thr Ser Ala  
 130 135 140  
 Val Thr Lys Pro Pro Gln Phe Gly Tyr Pro Tyr Val Gln Leu Ser Asn  
 145 150 155 160  
 Asp Ser Thr Gln Lys Phe Ile Ala Lys Leu Glu Ser Leu Phe Ala Glu  
 165 170 175  
 Gly Ser Arg Thr Ala Ala Glu Ile Lys Ala Leu Ser Phe Glu Thr Asn  
 180 185 190  
 Ser Leu Phe Ile Gln Gln Val Leu Val Asn Ile Gly Ser Leu Tyr Ser  
 195 200 205  
 Gly Tyr Leu Gln  
 210

&lt;210&gt;776

&lt;211&gt;478

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;776

Val Phe Met Val Asn Pro Ile Gly Pro Gly Pro Ile Asp Glu Thr Glu  
 1 5 10 15  
 Arg Thr Pro Pro Ala Asp Leu Ser Ala Gln Gly Leu Glu Ala Ser Ala  
 20 25 30  
 Ala Asn Lys Ser Ala Glu Ala Gln Arg Ile Ala Gly Ala Glu Ala Lys  
 35 40 45  
 Pro Lys Glu Ser Lys Thr Asp Ser Val Glu Arg Trp Ser Ile Leu Arg  
 50 55 60  
 Ser Ala Val Asn Ala Leu Met Ser Leu Ala Asp Lys Leu Gly Ile Ala  
 65 70 75 80  
 Ser Ser Asn Ser Ser Ser Ser Thr Ser Arg Ser Ala Asp Val Asp Ser  
 85 90 95  
 Thr Thr Ala Thr Ala Pro Thr Pro Pro Pro Thr Phe Asp Asp Tyr  
 100 105 110  
 Lys Thr Gln Ala Gln Thr Ala Tyr Asp Thr Ile Phe Thr Ser Thr Ser  
 115 120 125  
 Leu Ala Asp Ile Gln Ala Ala Leu Val Ser Leu Gln Asp Ala Val Thr  
 130 135 140  
 Asn Ile Lys Asp Thr Ala Ala Thr Asp Glu Glu Thr Ala Ile Ala Ala  
 145 150 155 160  
 Glu Trp Glu Thr Lys Asn Ala Asp Ala Val Lys Val Gly Ala Gln Ile  
 165 170 175  
 Thr Glu Leu Ala Lys Tyr Ala Ser Asp Asn Gln Ala Ile Leu Asp Ser  
 180 185 190  
 Leu Gly Lys Leu Thr Ser Phe Asp Leu Leu Gln Ala Ala Leu Leu Gln  
 195 200 205  
 Ser Val Ala Asn Asn Asn Lys Ala Ala Glu Leu Leu Lys Glu Met Gln  
 210 215 220  
 Asp Asn Pro Val Val Pro Gly Lys Thr Pro Ala Ile Ala Gln Ser Leu  
 225 230 235 240  
 Val Asp Gln Thr Asp Ala Thr Ala Thr Gln Ile Glu Lys Asp Gly Asn  
 245 250 255  
 Ala Ile Arg Asp Ala Tyr Phe Ala Gly Gln Asn Ala Ser Gly Ala Val  
 260 265 270  
 Glu Asn Ala Lys Ser Asn Asn Ser Ile Ser Asn Ile Asp Ser Ala Lys  
 275 280 285  
 Ala Ala Ile Ala Thr Ala Lys Thr Gln Ile Ala Glu Ala Gln Lys Lys  
 290 295 300  
 Phe Pro Asp Ser Pro Ile Leu Gln Glu Ala Glu Gln Met Val Ile Gln  
 305 310 315 320  
 Ala Glu Lys Asp Leu Lys Asn Ile Lys Pro Ala Asp Gly Ser Asp Val  
 325 330 335  
 Pro Asn Pro Gly Thr Thr Val Gly Gly Ser Lys Gln Gln Gly Ser Ser  
 340 345 350  
 Ile Gly Ser Ile Arg Val Ser Met Leu Leu Asp Asp Ala Glu Asn Glu  
 355 360 365  
 Thr Ala Ser Ile Leu Met Ser Gly Phe Arg Gln Met Ile His Met Phe  
 370 375 380  
 Asn Thr Glu Asn Pro Asp Ser Gln Ala Ala Gln Gln Glu Leu Ala Ala  
 385 390 395 400  
 Gln Ala Arg Ala Ala Lys Ala Ala Gly Asp Ser Ala Ala Ala Ala  
 405 410 415  
 Leu Ala Asp Ala Gln Lys Ala Leu Glu Ala Ala Leu Gly Lys Ala Gly  
 420 425 430  
 Gln Gln Gln Gly Ile Leu Asn Ala Leu Gly Gln Ile Ala Ser Ala Ala  
 435 440 445  
 Val Cys Glu Arg Arg Ser Ser Ser Arg Cys Ser Lys Phe Tyr Arg Val  
 450 455 460  
 Ile Cys Lys Pro Ala Leu Gln Asp Leu Lys Ile Tyr Arg Phe  
 465 470 475  
 <210>777  
 <211>438  
 <212>PRT  
 <213>Chlamydia pneumoniae

Gln Thr Phe Ala Asp Gly Arg Val Glu Gly Phe Lys Asp Ile Leu Thr  
 225 230 235 240  
 Ala Val Gln Gly Val Leu Thr Pro Glu Gln Phe Thr Ile Phe Ala Glu  
 245 250 255  
 Ile Ala Thr Glu Leu Gln Ala Leu Ala Asp His Val Gly Asn Phe Asp  
 260 265 270  
 Glu Ala Gly Leu Gln Arg Ile Glu Asp Ala Gly Glu Lys Leu Ala Ala  
 275 280 285  
 Val Ile Asn Ser Ser Asp Leu Thr Arg Asn Asp Lys Ile Met Phe Cys  
 290 295 300  
 Gln His Ile Thr Asp Leu Tyr Ser Asp Gln Val Ala Ala Leu Gly Ser  
 305 310 315 320  
 Phe Asp Thr Val Leu Asp Ala Ser Ile Tyr Val Asn Gln His Gln Gly  
 325 330 335  
 Thr Met Phe Ser Asn Leu Ser Ser Phe Val Gly Ser Leu Ile Gly Thr  
 340 345 350  
 Phe Ala Pro Ile Asp Leu Ser Ser Ser Gln Gly Asp Ile Ser Ser Ala  
 355 360 365  
 Ala Leu Ala Gly Ala Leu Gln Thr Ala Arg Gly Leu Asn Ser Arg Phe  
 370 375 380  
 Asn Glu Leu Thr Ala Glu Gln Gln Lys Leu Ile Asn Glu Cys Ile Asn  
 385 390 395 400  
 Leu Trp Leu Pro Leu Ser Val Val Ser Thr Leu Val Leu Ser Gly Leu  
 405 410 415  
 Ile Leu Gln His Leu Leu  
 420

&lt;210&gt;773

&lt;211&gt;645

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;773

Lys Tyr Tyr Leu Phe Ser Met Ser Thr Phe Ser Ile Gln Asn Arg Leu  
 1 5 10 15  
 Arg Thr Ile Ser Gly Glu Ser Thr Arg Ile Ile Lys Leu Asp His Lys  
 20 25 30  
 Tyr Ser Gly Phe Asp Pro Arg Ser Val Pro Ala Ile Asn Leu Glu Glu  
 35 40 45  
 Leu Asn Ser Gly Ile Tyr Ala Leu Arg His Leu Met Asn Ala Leu Gln  
 50 55 60  
 Ser Glu Asn Thr Asn Val Ala Ala Leu Leu Asn Pro Asn Asn Thr Ile  
 65 70 75 80  
 Phe Pro Thr Thr Ser Trp Thr Asp Tyr Lys His Ser Arg Pro Gln Ala  
 85 90 95  
 Ser Ser Pro Arg Ala Pro Ser Ser Gln Thr Pro Thr Asp Ile Val Ser  
 100 105 110  
 Ala Ala Ala Leu Ala Leu Val Leu Val Ile Asp Gly Gly Leu Ala Glu  
 115 120 125  
 Leu Val Ala Ser Val Thr Glu Ile Asp Leu Gly Ala Leu Ser Thr Ile  
 130 135 140  
 Ser Thr Val Arg Gln Leu Met Ala Ser Tyr Leu Gly Leu Thr Thr Leu  
 145 150 155 160  
 Thr Ala Glu Gln Glu Lys Val Val Phe Ser Ser Ser Tyr Val Pro Ser  
 165 170 175  
 Glu Lys Asn Leu Leu Glu His Val Lys Gln Glu Lys Ala Ala Glu Ile  
 180 185 190  
 Gln Ala Lys Gln Glu Glu Ile Lys Ala Val Leu Glu Ala Lys Gly Val  
 195 200 205  
 Ser Thr Glu Glu Ile Glu Ala Ile Leu Lys Glu Tyr Pro Asp Ile Tyr  
 210 215 220  
 Ala Ala Asp Phe Phe Lys Glu Phe Ile Glu Glu Pro Leu His Thr Tyr  
 225 230 235 240  
 Arg Ala Lys Val Gly Ala Pro Ile Gln Glu Met Asn Glu Asn Ala Ile  
 245 250 255  
 Gln Leu Leu Pro Thr Pro Pro Ala Ile Thr Pro Asp Asn Val Asn Glu

260 265 270  
 Val Asn Gly Met Asn Thr Leu Ser Thr Ile Leu Gln Ala Ile Asp Asp  
 275 280 285  
 Ala Ile Lys Gln Ala Pro Ala Leu Gly Gly Asp Gln Glu Ile Ile Thr  
 290 295 300  
 Ile Leu Gln Thr Leu Val Pro Leu Val Asp Lys Thr Thr Phe Thr Lys  
 305 310 315 320  
 Ala Glu Phe Asp Leu Ile Tyr Thr Ala Thr Gln Leu Pro Asn Thr Ala  
 325 330 335  
 Ser Leu Lys Leu Tyr Leu Thr Asp Arg Gln Ile Ala Glu Tyr Arg Gly  
 340 345 350  
 Lys Ile Thr Lys Val Tyr Gln Asn Ser Ile Gln Asn Leu Ser Glu Thr  
 355 360 365  
 Lys Arg Val Val Glu Asn Asn Arg Ser Met Leu Glu Thr Gln Leu Ser  
 370 375 380  
 Met Phe Gln Gln Ala Gln Asn Cys Phe Val Thr Trp Ile Ser Gln Ala  
 385 390 395 400  
 Asn Ala Leu Asn Ile Ala Ile Thr Asn Lys Tyr Ile Ser Ala Val Leu  
 405 410 415  
 Thr Thr Ser Met Glu Met Tyr Gly Gly Leu Leu Cys Leu Ser Tyr Met  
 420 425 430  
 Tyr Glu Arg Leu Ala Asp Asp Glu Lys Ala Ile Phe Asp Lys Ser Val  
 435 440 445  
 Asn Glu Tyr Leu Pro Ile His Ile Val Val Gly Gly Ser Trp Val Asn  
 450 455 460  
 Gly Trp Ile Ala Lys Met Ala Ala Tyr Gln Glu Leu Ala Glu Tyr Ser  
 465 470 475 480  
 Leu Gly Thr Ala Val Thr Ser Gln Asp Gln Ile Lys Ala Tyr Leu Gln  
 485 490 495  
 Thr Arg Gly Asn Glu Phe Lys Ala Thr Arg His Phe Phe His Asn Ile  
 500 505 510  
 Gly Asp Gln Met Tyr Gln Phe Ala Asn Glu Thr Val Phe Gly Asn Cys  
 515 520 525  
 Leu Thr Thr Ala Asn Gly Ala Ile Gln Pro Asp Leu Gly Gly Phe Ile  
 530 535 540  
 Arg Glu Ala Met Thr Asn Val Gly Thr Val Glu Ala Asp Tyr Val Ser  
 545 550 555 560  
 Asn Ala Gln Arg Ile Leu Asn Glu Phe Asn Thr Ala Ala Thr Ala His  
 565 570 575  
 Val Leu Gln Leu Gln Leu Gln Ile Ala Glu Leu Gln Lys Lys Ala Asp  
 580 585 590  
 Asp Leu Asp Pro Gly Lys Ala Ser Phe Thr Glu Asn Arg Lys Phe Ala  
 595 600 605  
 Val Ala Ala Leu Asp His Ile Gly Glu Leu Arg Arg Cys Phe Asn Phe  
 610 615 620  
 Tyr Asp Phe Xaa Leu Ser Ala Thr Lys Ala Arg Gly Phe Phe Lys Thr  
 625 630 635 640  
 Phe Asp Arg Arg Asn  
 645

&lt;210&gt;774

&lt;211&gt;284

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;774

Thr Gln Glu Lys Pro Leu Ser Leu Arg Thr Val Asn Leu Leu Leu Pro  
 1 5 10 15  
 Leu Trp Ile Thr Ser Glu Ser Leu Gly Asp Ala Leu Ile Ser Met Ile  
 20 25 30  
 Xaa Asn Ser Gln Leu Pro Lys Gln Glu Ala Phe Leu Lys Pro Leu Ile  
 35 40 45  
 Glu Glu Ile Asn Phe Asn Asn Leu Ala Ala Asn Ala Leu Asn Ser Leu  
 50 55 60  
 Leu Gln Ile Thr Asn Glu Phe Ser Thr Thr Ser Val Tyr Tyr Ser Leu  
 65 70 75 80

&lt;400&gt;777

Pro Ala Trp Ser Ser Val Ser Thr Leu Asn Ile Asp Thr Lys Asp Thr  
 1 5 10 15  
 Met Lys Lys Gln Val Tyr Gln Trp Leu Ala Ser Val Val Leu Leu Ala  
 20 25 30  
 Leu Thr Ile Ser Gly Tyr Ala Glu Leu Pro Leu Ser Glu Gln Lys Val  
 35 40 45  
 Lys Ser His Thr Tyr Thr Thr Leu Asp Glu Val Lys Asp Tyr Leu Ser  
 50 55 60  
 Lys Arg Gly Phe Val Glu Thr Arg Lys Gln Asp Gly Val Leu Arg Ile  
 65 70 75 80  
 Ala Gly Asp Val Arg Ala Arg Trp Leu Tyr Phe Arg Glu Asp Ile Lys  
 85 90 95  
 Asn Pro Ser Asp Lys Asp Lys Tyr Asn Pro Leu Pro Val Asn Arg Tyr  
 100 105 110  
 Arg Ser Glu Phe Tyr Leu Tyr Ile Asp Tyr Arg Ala Glu Arg Asn Trp  
 115 120 125  
 Leu Ser Ser Lys Met Asn Trp Thr Ala Ile Ala Gly Gly Glu Asn Thr  
 130 135 140  
 Ala Ala Gly Val Asp Ile Asn Arg Ala Phe Leu Gly Tyr Arg Phe Tyr  
 145 150 155 160  
 Lys Asn Pro Glu Thr Arg Thr Asp Phe Phe Met Glu Ile Gly Arg Ser  
 165 170 175  
 Gly Leu Gly Asp Leu Phe Glu Ser Glu Val Gln Phe Gln Ser Asn Phe  
 180 185 190  
 Asp Gly Leu His Ile Tyr Trp Thr Arg Glu Leu Ser Lys Asp Tyr Pro  
 195 200 205  
 Tyr Gln Val Ile Val His Gly Gly Pro Phe Val Val Asn Met Thr Lys  
 210 215 220  
 Lys His Tyr Ala Trp Val Val Glu Gly Ile Leu Asn Arg Leu Pro Lys  
 225 230 235 240  
 Gln Phe Phe Val Lys Cys Ser Val Val Asp Trp Asn Thr Phe Val Pro  
 245 250 255  
 Ser Glu Thr Ser Thr Thr Glu Lys Ala Ala Thr Asn Ala Met Lys Tyr  
 260 265 270  
 Lys Tyr Cys Val Trp Gln Trp Leu Val Gly Lys His Ser Gln Val Pro  
 275 280 285  
 Trp Ile Asn Gly Gln Lys Lys Pro Leu Tyr Leu Tyr Gly Ala Phe Leu  
 290 295 300  
 Met Asn Pro Leu Ala Lys Ala Thr Lys Thr Thr Leu Asn Gly Lys Glu  
 305 310 315 320  
 Asn Leu Ala Trp Phe Ile Gly Gly Thr Leu Gly Gly Leu Arg Lys Ala  
 325 330 335  
 Gly Asp Trp Ser Ala Thr Val Arg Tyr Glu Tyr Val Glu Ala Leu Ser  
 340 345 350  
 Val Pro Glu Ile Asp Val Ser Gly Ile Gly Arg Gly Asn Leu Leu Lys  
 355 360 365  
 Phe Trp Phe Ala Gln Ala Ile Ala Ala Asn Tyr Asp Pro Lys Glu Ala  
 370 375 380  
 Asn Gly Phe Thr Asn Tyr Lys Gly Phe Ser Ala Leu Tyr Met Tyr Gly  
 385 390 395 400  
 Ile Thr Asp Ser Leu Ser Phe Arg Ala Tyr Gly Ala Tyr Ser Lys Pro  
 405 410 415  
 Ala Asn Asp Lys Leu Gly Ser Asp Phe Thr Phe Arg Lys Phe Asp Leu  
 420 425 430  
 Gly Ile Ile Ser Ala Phe  
 435

&lt;210&gt;778

&lt;211&gt;321

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;778

Ala Leu Leu Ala Pro Leu Ser Leu Gly Ile Leu Thr Ser Ser Ile Phe  
 1 5 10 15

Gln Leu Asn Leu Leu Ser Asp Ile Cys Leu Ala Arg Tyr Val His Glu  
                     20                    25                    30  
 Ile Gly Pro Leu Tyr Leu Met Tyr Ser Leu Lys Ile Tyr Gln Leu Pro  
                     35                    40                    45  
 Ile His Leu Phe Gly Phe Gly Val Phe Thr Val Leu Leu Pro Ala Ile  
                     50                    55                    60  
 Ser Arg Cys Val Gln Arg Glu Asp His Glu Arg Gly Leu Lys Leu Met  
                     65                    70                    75                    80  
 Lys Phe Val Leu Thr Leu Thr Met Ser Val Met Ile Ile Met Thr Ala  
                     85                    90                    95  
 Gly Leu Leu Leu Leu Ala Leu Pro Gly Val Arg Val Leu Tyr Glu His  
                     100                    105                    110  
 Gly Leu Phe Pro Gln Ser Ala Val Tyr Ala Ile Val Arg Val Leu Arg  
                     115                    120                    125  
 Gly Tyr Gly Ala Ser Ile Ile Pro Met Ala Leu Ala Pro Leu Val Ser  
                     130                    135                    140  
 Val Leu Phe Tyr Ala Gln Arg Gln Tyr Ala Val Pro Leu Phe Ile Gly  
                     145                    150                    155                    160  
 Ile Gly Thr Ala Leu Ala Asn Ile Val Leu Ser Leu Val Leu Gly Arg  
                     165                    170                    175  
 Trp Val Leu Lys Asp Val Ser Gly Ile Ser Tyr Ala Thr Ser Ile Thr  
                     180                    185                    190  
 Ala Trp Val Gln Leu Tyr Phe Leu Trp Tyr Tyr Ser Ser Lys Arg Leu  
                     195                    200                    205  
 Pro Met Tyr Ser Lys Leu Leu Trp Glu Ser Ile Arg Arg Ser Ile Lys  
                     210                    215                    220  
 Val Met Gly Thr Thr Met Leu Ala Cys Met Ile Thr Leu Gly Leu Asn  
                     225                    230                    235                    240  
 Ile Leu Thr Gln Thr Thr Tyr Val Ile Phe Leu Asn Pro Leu Thr Pro  
                     245                    250                    255  
 Leu Ala Trp Pro Leu Ser Ser Ile Thr Ala Gln Ala Ile Ala Phe Leu  
                     260                    265                    270  
 Ser Glu Ser Cys Ile Phe Leu Ala Phe Leu Phe Gly Phe Ala Lys Leu  
                     275                    280                    285  
 Leu Arg Val Glu Asp Leu Ile Asn Leu Ala Ser Phe Glu Tyr Trp Arg  
                     290                    295                    300  
 Gly Gln Arg Gly Leu Leu Gln Arg Gln His Val Met Gln Asp Thr Gln  
                     305                    310                    315                    320  
 Asn

&lt;210&gt;779

&lt;211&gt;225

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;779

Met Ser Arg Lys Asp Asn Glu Val Ser Leu Ala Arg Ser Ile Phe Asn  
                     1                    5                    10                    15  
 Ile Leu Ser Gly Thr Phe Cys Ser Arg Ile Thr Gly Ile Phe Arg Glu  
                     20                    25                    30  
 Ile Ala Met Ala Thr Tyr Phe Gly Ala Asp Pro Ile Val Ala Ala Phe  
                     35                    40                    45  
 Trp Leu Gly Phe Arg Thr Val Phe Phe Leu Arg Lys Ile Leu Gly Gly  
                     50                    55                    60  
 Leu Ile Leu Glu Gln Ala Phe Ile Pro His Phe Glu Phe Leu Arg Ala  
                     65                    70                    75                    80  
 Gln Ser Leu Asp Arg Ala Ala Phe Phe Phe Arg Arg Phe Ser Arg Leu  
                     85                    90                    95  
 Ile Lys Gly Ser Thr Ile Ile Phe Thr Leu Leu Ile Glu Ala Val Leu  
                     100                    105                    110  
 Trp Val Val Leu Gln Tyr Val Glu Glu Gly Thr Tyr Asp Met Ile Leu  
                     115                    120                    125  
 Leu Thr Met Ile Leu Leu Pro Cys Gly Ile Phe Leu Met Met Tyr Asn  
                     130                    135                    140  
 Val Asn Gly Ala Leu Leu His Cys Glu Asn Lys Phe Phe Gly Val Gly

145                      150                      155                      160  
 Leu Ala Pro Val Val Val Asn Ile Ile Trp Ile Phe Phe Val Ile Ala  
                                  165                      170                      175  
 Ala Arg His Ser Asp Pro Arg Glu Arg Ile Ile Gly Leu Ser Val Ala  
                                  180                      185                      190  
 Leu Val Ile Gly Phe Phe Phe Glu Trp Leu Ile Thr Val Pro Gly Val  
                                  195                      200                      205  
 Trp Lys Phe Leu Leu Glu Ala Lys Ser Pro Pro Gln Glu His Asp Ser  
                                  210                      215                      220  
 Val  
 225  
 <210>780  
 <211>293  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>780  
 Met Lys Val Leu Pro Pro Pro Ser Ile Pro Leu Leu Gly Ala His Thr  
   1                                  5                                  10                                  15  
 Ser Thr Ala Gly Gly Leu Lys Asn Ala Ile Tyr Glu Gly Arg Asp Ile  
                                   20                                  25                                  30  
 Gly Ala Ser Thr Val Gln Ile Phe Thr Ala Asn Gln Arg Gln Trp Gln  
                                   35                                  40                                  45  
 Arg Arg Ala Leu Lys Glu Glu Val Ile Glu Asp Phe Lys Ala Ala Leu  
                                   50                                  55                                  60  
 Lys Glu Thr Asp Leu Ser Tyr Ile Met Ser His Ala Gly Tyr Leu Ile  
                                   65                                  70                                  75                                  80  
 Asn Pro Gly Ala Pro Asp Pro Val Ile Leu Glu Lys Ser Arg Ile Gly  
                                   85                                  90                                  95  
 Ile Tyr Gln Glu Ile Leu Asp Cys Ile Thr Leu Gly Ile Ser Phe Val  
                                   100                                  105                                  110  
 Asn Phe His Pro Gly Ala Ala Leu Lys Ser Ser Lys Glu Asp Cys Met  
                                   115                                  120                                  125  
 Asn Lys Ile Val Ser Ser Phe Ser Gln Ser Ala Pro Leu Phe Asp Ser  
                                   130                                  135                                  140  
 Ser Pro Pro Leu Val Val Leu Leu Glu Thr Thr Ala Gly Gln Gly Thr  
                                   145                                  150                                  155                                  160  
 Leu Ile Gly Ser Asn Phe Glu Glu Leu Gly Tyr Leu Val Gln Asn Leu  
                                   165                                  170                                  175  
 Lys Asn Gln Ile Pro Ile Gly Val Cys Val Asp Thr Cys His Ile Phe  
                                   180                                  185                                  190  
 Ala Ala Gly Tyr Asp Ile Thr Ser Pro Gln Gly Trp Glu Asp Val Leu  
                                   195                                  200                                  205  
 Asn Glu Phe Asp Glu Tyr Val Gly Leu Ser Tyr Leu Arg Ala Phe His  
                                   210                                  215                                  220  
 Leu Asn Asp Ser Met Phe Pro Leu Gly Ala Asn Lys Asp Arg His Ala  
                                   225                                  230                                  235                                  240  
 Pro Leu Gly Glu Gly Tyr Ile Gly Lys Glu Ser Phe Lys Phe Leu Met  
                                   245                                  250                                  255  
 Thr Asp Glu Arg Thr Arg Lys Ile Pro Lys Tyr Leu Glu Thr Pro Gly  
                                   260                                  265                                  270  
 Gly Pro Glu Asn Trp Gln Lys Glu Ile Gly Glu Leu Leu Lys Phe Ser  
                                   275                                  280                                  285  
 Lys Asn Arg Asp Ser  
                                   290  
 <210>781  
 <211>152  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>781  
 Met Ala Arg Tyr Cys Gly Pro Lys Asn Arg Val Ala Arg Arg Phe Gly  
   1                                  5                                  10                                  15  
 Ala Asn Ile Phe Gly Arg Ser Arg Asn Pro Leu Leu Lys Lys Pro His  
                                   20                                  25                                  30  
 Pro Pro Gly Gln His Gly Met Gln Arg Lys Lys Lys Ser Asp Tyr Gly

35 40 45  
 Leu Gln Leu Glu Glu Lys Gln Lys Leu Lys Ala Cys Tyr Gly Met Ile  
 50 55 60  
 Met Glu Lys Gln Leu Val Lys Ala Phe Lys Glu Val Ile His Lys Gln  
 65 70 75 80  
 Gly Asn Val Ala Gln Met Phe Leu Glu Arg Phe Glu Cys Arg Leu Asp  
 85 90 95  
 Asn Met Val Tyr Arg Met Gly Phe Ala Lys Thr Ile Phe Ala Ala Gln  
 100 105 110  
 Gln Leu Val Ala His Gly His Ile Leu Val Asn Gly Arg Arg Val Asp  
 115 120 125  
 Arg Arg Ser Phe Phe Leu Arg Pro Gly Met Gln Ile Ser Leu Lys Arg  
 130 135 140  
 Lys Asn Leu Asn Asp Phe Ser Leu  
 145 150

&lt;210&gt;782

&lt;211&gt;324

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;782

Met Glu Lys Lys Tyr Tyr Ala Leu Ala Tyr Tyr Tyr Ile Thr Arg Val  
 1 5 10 15  
 Asp Asn Pro His Glu Glu Ile Ala Leu His Lys Lys Phe Leu Glu Asp  
 20 25 30  
 Leu Asp Val Ser Cys Arg Ile Tyr Ile Ser Glu Gln Gly Ile Asn Gly  
 35 40 45  
 Gln Phe Ser Gly Tyr Glu Pro His Ala Glu Leu Tyr Met Gln Trp Leu  
 50 55 60  
 Lys Glu Arg Pro Asn Phe Ser Lys Ile Lys Phe Lys Ile His His Ile  
 65 70 75 80  
 Lys Glu Asn Ile Phe Pro Arg Ile Thr Val Lys Tyr Arg Lys Glu Leu  
 85 90 95  
 Ala Ala Leu Gly Cys Glu Val Asp Leu Ser Lys Gln Ala Lys His Ile  
 100 105 110  
 Ser Pro Gln Glu Trp His Glu Lys Leu Gln Glu Asn Arg Cys Leu Ile  
 115 120 125  
 Leu Asp Val Arg Asn Asn Tyr Glu Trp Lys Ile Gly His Phe Asp Asn  
 130 135 140  
 Ala Thr Leu Pro Asp Ile Gln Thr Phe Arg Glu Phe Pro Glu Tyr Ala  
 145 150 155 160  
 Glu Lys Leu Ala Gln Glu Cys Asp Pro Glu Thr Thr Pro Val Met Met  
 165 170 175  
 Tyr Cys Thr Gly Gly Ile Arg Cys Glu Leu Tyr Ser Pro Val Leu Leu  
 180 185 190  
 Glu Lys Gly Phe Lys Glu Val Tyr Gln Leu Asp Gly Gly Val Ile Ala  
 195 200 205  
 Tyr Gly Gln Gln Val Gly Thr Gly Lys Trp Leu Gly Lys Leu Phe Val  
 210 215 220  
 Phe Asp Asp Arg Leu Ala Ile Pro Ile Asp Glu Ser Asp Pro Asp Val  
 225 230 235 240  
 Ala Pro Ile Ala Glu Cys Cys His Cys Gln Thr Pro Ser Asp Ala Tyr  
 245 250 255  
 Tyr Asn Cys Ala Asn Thr Asp Cys Asn Ala Leu Phe Leu Cys Cys Asp  
 260 265 270  
 Glu Cys Ile His Gln His Gln Gly Cys Cys Gly Glu Glu Cys Ser Gln  
 275 280 285  
 Ser Pro Arg Val Arg Lys Phe Asp Ser Ser Arg Gly Asn Lys Pro Phe  
 290 295 300  
 Arg Arg Ala His Leu Cys Glu Ile Ser Glu Asn Ser Glu Ser Ala Ser  
 305 310 315 320  
 Cys Cys Leu Ile

&lt;210&gt;783

&lt;211&gt;222



&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;783

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Met Leu Met Met Leu Met Met Ile Ile Gly Ile Thr Gly Gly Ser Gly
 1           5           10           15
Ala Gly Lys Thr Thr Leu Thr Gln Asn Ile Lys Glu Ile Phe Gly Glu
          20           25           30
Asp Val Ser Val Ile Cys Gln Asp Asn Tyr Tyr Lys Asp Arg Ser His
          35           40           45
Tyr Thr Pro Glu Glu Arg Ala Asn Leu Ile Trp Asp His Pro Asp Ala
          50           55           60
Phe Asp Asn Asp Leu Leu Ile Ser Asp Ile Lys Arg Leu Lys Asn Asn
          65           70           75           80
Glu Ile Val Gln Ala Pro Val Phe Asp Phe Val Leu Gly Asn Arg Ser
          85           90           95
Lys Thr Glu Ile Glu Thr Ile Tyr Pro Ser Lys Val Ile Leu Val Glu
          100          105          110
Gly Ile Leu Val Phe Glu Asn Gln Glu Leu Arg Asp Leu Met Asp Ile
          115          120          125
Arg Ile Phe Val Asp Thr Asp Ala Asp Glu Arg Ile Leu Arg Arg Met
          130          135          140
Val Arg Asp Val Gln Glu Gln Gly Asp Ser Val Asp Cys Ile Met Ser
          145          150          155          160
Arg Tyr Leu Ser Met Val Lys Pro Met His Glu Lys Phe Ile Glu Pro
          165          170          175
Thr Arg Lys Tyr Ala Asp Ile Ile Val His Gly Asn Tyr Arg Gln Asn
          180          185          190
Val Val Thr Asn Ile Leu Ser Gln Lys Ile Lys Asn His Leu Glu Asn
          195          200          205
Ala Leu Glu Ser Asp Glu Thr Tyr Tyr Met Val Asn Ser Lys
          210          215          220

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&lt;210&gt;784

&lt;211&gt;503

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;784

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Leu Arg Leu Ala Gly Ser Leu Ala Asp Arg Phe Gln Lys Arg Asn Ile
 1           5           10           15
Ile Leu Ala Thr Arg Phe Ile Glu Ile Leu Cys Thr Ile Leu Gly Thr
          20           25           30
Tyr Phe Phe Phe Ile Gln Ser Val Val Gly Gly Tyr Val Val Leu Ile
          35           40           45
Leu Met Ala Cys His Thr Thr Ile Phe Gly Pro Ala Lys Leu Gly Ile
          50           55           60
Leu Pro Glu Met Leu Pro Ser Glu Gln Leu Ser Gln Ala Asn Gly Ile
          65           70           75           80
Met Thr Ala Ala Thr Tyr Thr Gly Ser Ile Leu Gly Ser Cys Leu Ala
          85           90           95
Pro Leu Leu Val Asp Val Thr His Arg Leu Gly Val Asn Ser Tyr Val
          100          105          110
Trp Pro Thr Leu Met Cys Val Ile Val Ser Ile Ile Ser Thr Leu Ile
          115          120          125
Ser Phe Cys Ile Arg Pro Ser Asn Val Lys Asn Val Lys Gln Lys Ile
          130          135          140
Thr Leu Val Ser Phe Lys Asp Leu Trp Lys Val Leu Lys Asp Thr Arg
          145          150          155          160
Met Ile His Tyr Leu Thr Val Ser Ile Phe Leu Gly Ser Phe Phe Leu
          165          170          175
Leu Ile Gly Ala Tyr Thr Gln Leu Glu Ile Ile Pro Phe Val Glu Phe
          180          185          190
Ile Leu Lys Tyr Pro Lys His Tyr Gly Ala Tyr Leu Phe Pro Ile Val
          195          200          205
Ala Leu Gly Val Gly Thr Gly Ser Tyr Ile Thr Gly Lys Ile Ser Gly
          210          215          220

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Lys Asp Ile Lys Ile Gly Tyr Val Pro Leu Ala Ala Ile Gly Leu Ala  
 225 230 235 240  
 Leu Val Phe Met Gly Leu Tyr Ala Phe Ala Cys Ser Ile Leu Phe Val  
 245 250 255  
 Leu Phe Phe Leu Leu Ala Leu Gly Phe Leu Gly Gly Val Tyr Gln Val  
 260 265 270  
 Pro Leu His Ala Tyr Val Gln Tyr Ala Ser Pro Glu His Lys Arg Gly  
 275 280 285  
 Gln Ile Leu Ala Ala Asn Asn Phe Leu Asp Phe Phe Gly Val Leu Val  
 290 295 300  
 Ala Ala Gly Val Ile Arg Val Leu Gly Ser Asn Leu Gly Leu Ser Pro  
 305 310 315 320  
 Glu Thr Ser Phe Phe Tyr Ile Gly Trp Phe Val Leu Ala Val Ser Ile  
 325 330 335  
 Trp Thr Leu Trp Ile Trp Arg Glu His Val Tyr Arg Leu Leu Leu Gly  
 340 345 350  
 Ile Ile Leu Arg Arg Gln Leu Gly Tyr Tyr Leu Lys Ile His Gln Ser  
 355 360 365  
 Ser Ser Pro Lys Cys Tyr Phe Val Ala Val Gln Ser Tyr Arg Glu Ile  
 370 375 380  
 Arg Arg Val Leu Ala Ala Leu Thr Lys Thr Val Arg Ser Arg Val Ile  
 385 390 395 400  
 Ile Leu Asp Gln Lys Leu Val Pro Gly Trp Arg Ala Trp Leu Leu Ser  
 405 410 415  
 Trp Cys Val Pro Thr Val Val Ser Ser Val Arg Asp Asn Asp Ser Glu  
 420 425 430  
 Ala Gln Asp Ala Trp Ala Val Leu Gln Ala Asn His Leu Lys Thr Ser  
 435 440 445  
 Leu Lys Lys Phe Pro Asp Val Ser Val Val Cys Leu Gly Leu Pro Lys  
 450 455 460  
 Asn Val Glu Arg Phe Thr Ser Ile Leu Gln Glu Gln Gly Ile Asp Leu  
 465 470 475 480  
 His Pro Ile Gln Leu Val Gln Lys Glu Gly Lys Lys Arg Val Ile Tyr  
 485 490 495  
 Thr Leu Val Phe Pro His Ala  
 500

&lt;210&gt;785

&lt;211&gt;644

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;785

Ile His Gly Leu Lys Ile Ser Glu Ile Lys Ile Leu Leu Leu Ser Ser  
 1 5 10 15  
 Ile Leu Gln Thr Gln Gly Asp Leu His Tyr Ile Leu Gln Leu Leu Thr  
 20 25 30  
 His Pro Gln Leu Gln Gln Pro Ile Asp Gln Asn Lys Val Pro Tyr Leu  
 35 40 45  
 Ile Lys Lys Leu Ser Ser Glu Trp Gly Lys Ile Ser Ser Lys Glu Arg  
 50 55 60  
 Ala Ser Gly Gln Gln Met Lys Ala Leu Gly Asp Leu Ile Leu Glu Glu  
 65 70 75 80  
 Tyr Pro Phe His Gln Glu Gly Gly Arg Val Ser Gln Val Glu Val Trp  
 85 90 95  
 Glu Thr Thr Val Pro Leu Ile Tyr Phe Ile Gln Glu Arg Ile Asn Leu  
 100 105 110  
 Tyr Leu Ser Ser Ser Gln His Ser Tyr Glu Asp Leu Phe Gln Asn Val  
 115 120 125  
 Phe Ser Cys Leu Glu Lys Ile Phe Val Leu Ser Pro Glu Glu Thr Ser  
 130 135 140  
 Phe Ile Thr Thr Leu Arg Asn Ser Leu Phe Pro Thr Phe Ala Thr Ser  
 145 150 155 160  
 Ser Cys Ser Leu Leu Phe Phe Thr Asp Phe Cys Leu Asp Phe Leu Leu  
 165 170 175  
 His Phe His Lys Pro Ser Pro Leu Tyr Asp Lys Pro Gly Pro Tyr Ile

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<210>786
<211>439
<212>PRT
<213>Chlamydia pneumoniae
<400>786
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Pro Val Lys Pro Phe Asn Ile Phe Asp Ser Asn Ser Ser Ile Gln Gly  
 1 5 10 15  
 Lys Phe Phe Leu Glu Ala Ser Ala Gly Thr Gly Lys Thr Phe Thr Ile  
 20 25 30  
 Glu Gln Ile Val Leu Arg Ala Leu Ile Glu Gly Ser Leu Thr His Val  
 35 40 45  
 Glu His Ala Leu Ala Ile Thr Phe Thr Asn Ala Ser Thr Asn Glu Leu  
 50 55 60  
 Lys Val Arg Ile Lys Asp Asn Leu Ala Gln Thr Leu Arg Glu Leu Lys  
 65 70 75 80  
 Ala Val Leu Asn Ser Gln Pro Ala Ser Leu Pro Thr Tyr Leu Asp Ile  
 85 90 95  
 Asn Cys Asn Val Lys Gln Ile Tyr Met Gln Val Arg Asn Ala Leu Ala  
 100 105 110  
 Thr Leu Asp Gln Met Ser Leu Phe Thr Ile His Gly Phe Cys Asn Phe  
 115 120 125  
 Val Leu Glu Gln Tyr Phe Pro Lys Thr Arg Leu Ile His Lys Asn Pro  
 130 135 140  
 Ala Leu Thr His Ser Gln Leu Val Leu His His Ile Thr Asn Tyr Leu  
 145 150 155 160  
 Lys Gln Asp Leu Trp Lys Asn Val Leu Phe Gln Glu Gln Phe His Leu  
 165 170 175  
 Leu Ala Val Arg Tyr Asn Val Thr Ser Lys His Thr Ser Ser Leu Val  
 180 185 190  
 Asp Lys Leu Leu Ala Ser Tyr Thr Gln Pro Ile Ser Ser Tyr Phe Ser  
 195 200 205  
 Ser Arg Val Glu Arg Leu Glu Gln Ile Ser Leu Trp His Gln Gln Ile  
 210 215 220  
 Tyr Asn Ser Leu Leu Glu Ile Pro Lys Gln Val Phe Leu Asp Gln Leu  
 225 230 235 240  
 Thr Ala His Ile Ser Gly Phe Lys Lys Gln Pro Phe Ser Ile Leu Asp  
 245 250 255  
 Asp Leu His His Phe Val Asp Leu Leu Tyr Thr Ser Glu Thr His Ser  
 260 265 270  
 Ser Leu Phe Ser Phe Phe Lys Ile Ala Glu Thr Phe Asn Phe Lys His  
 275 280 285  
 Arg Leu Ala Arg Tyr Lys Pro Cys Ala Ala Phe Thr Val Leu Glu Asn  
 290 295 300  
 Met Ser Trp Val Glu Arg Thr Leu Glu Phe Cys Asn Leu Asp Arg Ile  
 305 310 315 320  
 Phe Asn Thr Leu Leu Val Asp Leu Gln Glu Tyr Leu Lys Gln Asn Tyr  
 325 330 335  
 Thr Pro Trp Leu Ser Pro Asp Glu Ser Val Phe Ala Leu Glu Lys Leu  
 340 345 350  
 Leu Ser Ser Ser Glu Ala Gln Pro Val Val Gln Ala Leu Arg Glu Gln  
 355 360 365  
 Tyr Gln Leu Val Leu Ile Asp Glu Phe Gln Asp Thr Asp Lys Gln Gln  
 370 375 380  
 Trp Ser Ile Phe Ser Asn Leu Phe Ile Ser Pro Lys Phe Thr Gly Ser  
 385 390 395 400  
 Leu Phe Leu Ile Gly Asp Pro Lys Gln Ser Ile Tyr Glu Trp Arg Ser  
 405 410 415  
 Ala Asp Leu Pro Thr Tyr Leu Thr Ala Lys Ser Ser Phe Ser Glu Asp  
 420 425 430  
 Lys Gln Leu Gln Leu Val Asn  
 435

&lt;210&gt;787

&lt;211&gt;489

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;787

Leu Met Asn Phe Lys Ile Gln Thr Ser Asn Asn Gly Ala Ser Phe Arg  
 1 5 10 15  
 Ile Ser Leu Phe Leu Arg Asn Leu Gln Asp Arg Tyr Phe Leu Ser Glu

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<210>788
<211>260
<212>PRT
<213>Chlamydia pneumoniae
<400>788
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Gly Pro Trp Thr Cys Tyr His Ser Val Glu Ser Ala Thr Phe Arg Asp  
 1 5 10 15  
 Val Arg Ser Lys Ser Asp Thr Pro Glu Asn Tyr Phe Phe Leu Leu Ile  
 20 25 30  
 Tyr Lys Ile Pro Ile Gly His Ser Gln Arg Leu Ala Ile Asp Pro Ile  
 35 40 45  
 Phe Gln Leu Pro Ile Ser Lys Gln Gln Leu Pro Leu Gly Glu Lys Thr  
 50 55 60  
 Gly Ile Leu Ile His Lys Ile Leu Glu Ser Ile Gln Phe Ser Leu Leu  
 65 70 75 80  
 Gln Asp Thr Glu Tyr Leu Met Ser Thr Ile Met Arg Phe Ile Lys His  
 85 90 95  
 Thr His Leu Glu Gly Phe Glu Glu Thr Ile Leu Lys Leu Leu Ser Lys  
 100 105 110  
 Thr Phe Phe Ser Pro Leu Thr Phe Ser Ser Gln Thr Phe Ser Leu Ser  
 115 120 125  
 Gln Val Leu Pro Asn Lys Ile Phe Arg Glu Thr Ser Phe Leu Phe Leu  
 130 135 140  
 Glu Asn Gln Glu Leu Trp Gln Gly Val Ile Asp Leu Phe Phe Glu His  
 145 150 155 160  
 Glu Gly Lys Tyr Tyr Ile Ile Asp Trp Lys Thr Ser Phe Leu Gly Glu  
 165 170 175  
 Thr Asn Ser Asp Tyr Ser Lys Ser Asn Leu Ser Ile Tyr Ile Lys Gln  
 180 185 190  
 Glu Lys Leu Asp Tyr Gln Gly Arg Ile Tyr Val Lys Ala Val Arg Lys  
 195 200 205  
 Phe Leu Asn Gln Phe Glu Ile Asp Asp Asp Val Glu Leu Gly Val Ile  
 210 215 220  
 Phe Ile Arg Gly Ile Asp Thr Gln Gly Asn Gly Phe Phe Ala Leu Asn  
 225 230 235 240  
 Ser Ser Glu Asp Ile Pro Asn Phe Asn Pro Lys Ala Ile Gln Lys Cys  
 245 250 255  
 Gln Ala Tyr His  
 260

&lt;210&gt;789

&lt;211&gt;344

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;789

Cys Lys Val Leu Phe Lys Leu Met Ser Tyr Ser Leu Arg Asn Lys Lys  
 1 5 10 15  
 Thr Lys Ile Cys Val Tyr Ile Ile Ile Ala Leu Gly Ile Leu Ser Phe  
 20 25 30  
 Arg Ser Ile Pro Gln Glu Val Tyr Asp Lys Ile Arg Ser Ser Phe Val  
 35 40 45  
 Ser Leu His Val Lys Phe Phe Pro Lys Ile Lys Gln Ala Pro Ser Ser  
 50 55 60  
 His Leu Ala Asn Leu Glu Leu Glu Asn Leu Val Leu Lys Glu Arg Val  
 65 70 75 80  
 Ala Ser Leu Glu Glu Lys Leu Lys Leu Tyr Glu Val Ser Asn His Thr  
 85 90 95  
 Pro Pro Leu Phe Pro Glu Ile Leu Thr Pro Tyr Phe His Lys Leu Val  
 100 105 110  
 Glu Gly Lys Val Val Tyr Arg Asp Tyr Thr His Trp Ser Ser Ser Cys  
 115 120 125  
 Trp Val Asn Val Gly Lys Thr His Gly Ile Lys Lys Asn Ser Pro Val  
 130 135 140  
 Leu Ser Gly Asn Val Leu Val Gly Leu Val Asp Tyr Val Gly Glu His  
 145 150 155 160  
 Gln Ser Arg Ile Arg Leu Ile Thr Asp Val Gly Met Lys Pro Ser Val  
 165 170 175  
 Val Ala Met Arg Gly Asp Ile Gln Ser Trp Trp Ile Lys His Ser Leu  
 180 185 190  
 Arg Glu Leu Ile Arg Gln Val Glu Gln Ile Ser His Ala Tyr Ile Leu

195 200 205  
 Glu Lys Asp Lys Tyr Glu Lys Ile Ser Gln Leu Gln Glu Leu Asp Ser  
 210 215 220  
 Leu Ile Gln Gly Glu Gly Asn Gln Ala Leu Leu Arg Gly Ile Leu  
 225 230 235 240  
 Ser Gly Val Gly Gly Ala Leu Trp Lys Glu Gly Ser Leu Cys Leu Glu  
 245 250 255  
 Gly Glu Gly Phe Tyr Phe Ser Glu Gly Lys Thr Leu Leu Pro Gly Asp  
 260 265 270  
 Ile Leu Val Thr Thr Gly Leu Asp Gly Val Phe Pro Pro Gly Leu Leu  
 275 280 285  
 Val Ala Arg Val Thr Lys Val Lys Ala Pro Arg Asp Gly Ala Cys Thr  
 290 295 300  
 Phe Lys Ile Glu Ala Gln Ser Leu Glu Glu Lys Leu Met Glu Leu Asp  
 305 310 315 320  
 Gln Leu Phe Ile Leu Pro Pro Leu Glu Phe Asn Pro Asn Asp Arg Pro  
 325 330 335  
 Asp Ile Phe Gly Leu Leu Trp Asp  
 340

&lt;210&gt;790

&lt;211&gt;395

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;790

Met Ser Phe Phe Asn His Ile Pro Thr Phe Ser Pro Asp Ala Ile Leu  
 1 5 10 15  
 Gly Leu Gln Asn Val Phe Phe Ala Asp Lys Arg Pro Glu Lys Val Asn  
 20 25 30  
 Leu Val Ile Gly Val Tyr Glu His Pro Gln Lys Arg Tyr Gly Gly Leu  
 35 40 45  
 Ser Cys Ile Arg Lys Ala Gln Thr Val Ile Leu Glu Glu Glu Gln Asn  
 50 55 60  
 Lys Ser Tyr Leu Pro Ile Ser Gly Leu Gln Ile Phe Leu Asp Glu Met  
 65 70 75 80  
 Arg Glu Leu Val Phe Gly Ala Val Asp Pro Ser Ala Ile Val Gly Phe  
 85 90 95  
 Gln Ser Leu Gly Gly Thr Gly Ala Leu His Leu Gly Ala Arg Leu Leu  
 100 105 110  
 Ser Val Ala Lys Gly Ser Gly Lys Val Tyr Val Pro Glu Gln Thr Trp  
 115 120 125  
 Ser Asn His Ile Arg Ile Phe Ser Gln Glu Gly Leu Glu Val Ile Arg  
 130 135 140  
 Tyr Pro Tyr Tyr Ser Lys Glu Gln Lys Gln Leu Phe Glu Pro Leu  
 145 150 155 160  
 Ile Ala Phe Leu Lys Glu Val Glu Lys Asn Ser Val Ile Leu Leu His  
 165 170 175  
 Gly Cys Cys His Asn Pro Thr Gly Val Asp Phe Thr Glu Asp Met Trp  
 180 185 190  
 Lys Glu Leu Ala Ile Leu Met Lys Glu Arg Glu Leu Ile Pro Phe Phe  
 195 200 205  
 Asp Thr Ala Tyr Gln Gly Phe Ala His Gly Ile Glu Leu Asp Arg Lys  
 210 215 220  
 Pro Ile Glu Ile Phe Ile Ser Glu Gly Asn Thr Val Leu Val Ala Ala  
 225 230 235 240  
 Ser Ser Ser Lys Asn Phe Ala Leu Tyr Gly Glu Arg Val Gly Tyr Phe  
 245 250 255  
 Ala Val His Ser Thr Phe Thr Asp Glu Leu Val Lys Ile His Ser Phe  
 260 265 270  
 Leu Glu Glu Lys Ile Arg Gly Glu Tyr Ser Ser Pro Gln Arg Trp Gly  
 275 280 285  
 Val Glu Ile Val Ser Thr Ile Leu Ser Asn Pro Tyr Leu Lys Glu Glu  
 290 295 300  
 Trp Gln Ser Glu Leu Asn Phe Ile Arg Glu Ser Leu Gly Lys Met Arg  
 305 310 315 320

Thr Arg Phe Val Gln Ala Leu Arg Lys Val Ala Gly His Thr Phe Asp  
 325 330 335  
 Phe Leu Leu Ser Gln His Gly Phe Phe Ala Tyr Pro Gly Phe Ser Asp  
 340 345 350  
 Lys Gln Val Leu Phe Leu Arg Glu Gln His Ala Val Tyr Thr Thr Ala  
 355 360 365  
 Gly Gly Arg Met Asn Leu Asn Gly Ile Thr Glu Lys Asn Ile Asp His  
 370 375 380  
 Val Val Gln Ser Phe Ile Gln Ala Tyr Glu Leu  
 385 390 395  
 <210>791  
 <211>733  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>791  
 Glu Tyr Ile Phe Arg Leu Lys Thr Gly Asp Ile Val Asp Tyr Leu Glu  
 1 5 10 15  
 Lys Leu Gln Val Leu Ile Glu Glu Gly Gln Ser Ala Asn Phe Leu Ser  
 20 25 30  
 Leu Trp Glu Tyr Cys Phe Asn Asp Val Val Arg Gly Arg Glu Leu  
 35 40 45  
 Val Glu Ile Leu Glu Lys Val Lys Ser Ser Ser Leu Ala Ser Leu Phe  
 50 55 60  
 Gly Lys Ile Val Asp Thr Val Val Pro Leu Trp Glu Lys Ile Pro Glu  
 65 70 75 80  
 Gly Lys Asp Lys Asp Arg Val Leu Gln Leu Ile Leu Asp Leu Gln Thr  
 85 90 95  
 Ser Asn Ser Gln Met Phe Phe Asp Ile Ala Thr Glu Tyr Val Asn Lys  
 100 105 110  
 Lys Tyr Ser Gly Glu Glu Asn Phe Asn Glu Ala Leu Arg Val Val Gly  
 115 120 125  
 Leu Arg Asp Gly Arg Asp Phe Gln Phe Ser Leu Ser Arg Phe Asp Phe  
 130 135 140  
 Leu Met His Met His Lys Gly Asn Phe Val Phe His Gln Gly Gly Trp  
 145 150 155 160  
 Gly Val Gly Glu Val Met Gly Val Ser Phe Leu Gln Gln Lys Val Leu  
 165 170 175  
 Ile Glu Phe Glu Gly Ile Met Ser Ala Lys Asp Ile Ser Phe Glu Thr  
 180 185 190  
 Ala Phe Lys Ser Leu Thr Pro Leu Ser Gly Asp His Phe Leu Ser Arg  
 195 200 205  
 Arg Phe Gly Asp Pro Asp Gly Phe Glu Ala Phe Ala Lys Glu Asn Pro  
 210 215 220  
 Ile Glu Val Val Glu Ile Leu Leu Arg Asp Leu Gly Pro Lys Thr Ala  
 225 230 235 240  
 Lys Glu Ile Lys Asp Glu Leu Val Asp Leu Val Ile Pro Glu Ala Asp  
 245 250 255  
 Trp Asn Arg Trp Trp Gln Ser Ala Lys Thr Lys Ile Lys Lys Gly Thr  
 260 265 270  
 Arg Ile Ile Ser Pro Asp Asn Pro Lys Glu Pro Tyr Val Leu Ser Asp  
 275 280 285  
 Ala Gly Cys Ser His Met Gly Gln Leu Glu Arg Lys Leu Gly Leu Ser  
 290 295 300  
 Leu Asn Ser Ala Glu Lys Ile Ser Leu Ile Tyr His Phe Ile Arg Asp  
 305 310 315 320  
 Leu His Ser Glu Leu Lys Asn Ile Glu Ile Arg Lys Ser Leu Val Lys  
 325 330 335  
 Ala Leu Gln Asp Leu Asp Val Glu Glu Gly Asn Lys Ser Leu Ile Leu  
 340 345 350  
 Gln Arg Glu Leu Leu Leu Ser Glu Tyr Leu Gly Ile Lys Asp Ala Ser  
 355 360 365  
 Ile Asp Lys Glu Tyr Ile Thr Ser Leu Ser Glu Asp Asp Thr Ser Arg  
 370 375 380  
 Leu Leu Glu Asn Met Pro Ile Val Ala Leu Gln Lys Ser Phe Leu Ser



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385          390          395          400
Leu Val Arg Lys Tyr Ser Ser Phe Trp Gln Gln Val Phe Met Gln Ile
          405          410          415
Leu Leu Tyr Thr Thr Ser Pro Thr Met Arg Asp Phe Val Tyr Lys Thr
          420          425          430
Ile Lys Asn Asp Pro Ser Ser Val Glu Val Leu Lys Lys Arg Leu Leu
          435          440          445
Asp Ser Ala His Gln Pro Met Met Phe Pro Glu Leu Phe Val Trp Phe
          450          455          460
Phe Leu Lys Leu Gly Asn His Glu Asp Gly Leu Phe Asp Pro Glu Asp
465          470          475          480
Lys Glu Val Leu Arg Leu Phe Leu Glu Ser Ala Leu Asn Phe Met Tyr
          485          490          495
Gln Val Ala Ser Thr Pro His Lys Glu Leu Gly Lys Lys Leu His His
          500          505          510
Tyr Leu Val Gly Gln Arg Tyr Leu Ala Val Arg Gln Met Ile Glu Gly
          515          520          525
Ala Ser Leu Pro Phe Leu Lys Glu Leu Leu Leu Leu Ser Thr Lys Cys
          530          535          540
Pro Gln Phe Ser Ser Ser Asp Leu Asn Val Leu Gln Ser Leu Ala Glu
545          550          555          560
Val Val Gln Pro Thr Leu Lys Lys His Lys Ser Asn Val Glu Glu Glu
          565          570          575
Asn Val Leu Trp Ser Thr Ser Glu Ser Phe Ser Arg Met Lys Ala Lys
          580          585          590
Leu Gln Ser Leu Val Gly Lys Glu Met Val Asp Asn Ala Lys Glu Ile
          595          600          605
Glu Asp Ala Arg Ser Leu Gly Asp Leu Arg Glu Asn Ser Glu Tyr Lys
          610          615          620
Phe Ala Leu Glu Lys Arg Ala Arg Leu Gln Glu Glu Ile Arg Val Leu
625          630          635          640
Ser Glu Glu Ile Asn Arg Ala Arg Ile Leu Thr Lys Asp Leu Val Phe
          645          650          655
Thr Asp Lys Val Gly Val Gly Cys Lys Val Thr Leu Lys Gly Asp Ala
          660          665          670
Gly Glu Val Val Glu Tyr Thr Ile Leu Gly Pro Trp Asp Ala Asp Pro
          675          680          685
Asp Ser Cys Ile Leu Ser Leu Gln Ser Lys Leu Ala Gln Asn Met Leu
          690          695          700
Gly Lys Lys Leu Asn Asp Val Val Ile Leu Gln Gly Lys Glu Tyr Lys
705          710          715          720
Ile Ser Arg Ile Gln Ser Ile Trp Glu Glu His Gly Ala
          725          730

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&lt;210&gt;792

&lt;211&gt;149

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;792

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Thr Lys Met Met Val Ile Val Met Asn Ser Lys Ser Ala Gln Lys Ile
1          5          10          15
Ile Asp Ser Ile Lys Gln Ile Leu Thr Ile Tyr Asn Ile Asp Phe Asp
          20          25          30
Pro Ser Phe Gly Ser Ser Leu Ser Ser Asp Ser Asp Ala Asp Tyr Glu
          35          40          45
Tyr Leu Ile Thr Lys Thr Gln Glu Lys Ile Gln Glu Leu Asp Lys Arg
          50          55          60
Ala Gln Glu Ile Leu Thr Gln Thr Gly Met Ser Lys Glu Gln Met Glu
65          70          75          80
Val Phe Ala Asn Asn Pro Asp Asn Phe Ser Pro Glu Glu Trp Leu Ala
          85          90          95
Leu Glu Lys Val Arg Ser Ser Cys Asp Glu Tyr Arg Lys Glu Thr Glu
          100          105          110
Asn Leu Ile Asn Glu Ile Thr Leu Asp Leu His Pro Thr Lys Glu Ser
          115          120          125

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Lys Arg Pro Lys Gln Lys Leu Ser Ser Thr Lys Lys Asn Lys Lys Lys  
 130 135 140  
 Asn Trp Ile Pro Leu  
 145  
 <210>793  
 <211>469  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>793  
 Ile Phe Met Lys Ile Thr Val Asn Arg Gly Leu Asp Leu Ser Leu Gln  
 1 5 10 15  
 Gly Ser Pro Lys Glu Ser Gly Phe Tyr Asn Lys Ile Asp Pro Glu Phe  
 20 25 30  
 Val Ser Ile Asp Leu Arg Pro Phe Gln Pro Leu Ser Leu Lys Leu Lys  
 35 40 45  
 Val Glu Gln Gly Asp Ala Val Cys Ser Gly Ala Pro Ile Ala Glu Tyr  
 50 55 60  
 Lys His Phe Pro Asn Thr Tyr Ile Thr Ser His Val Ser Gly Val Val  
 65 70 75 80  
 Thr Ala Ile Arg Arg Gly Asn Lys Arg Ser Leu Leu Asp Val Ile Ile  
 85 90 95  
 Lys Lys Thr Pro Gly Pro Thr Ser Thr Glu Tyr Thr Tyr Asp Leu Gln  
 100 105 110  
 Thr Leu Ser Arg Ser Asp Leu Ser Glu Ile Phe Lys Glu Asn Gly Leu  
 115 120 125  
 Phe Ala Leu Ile Lys Gln Arg Pro Phe Asp Ile Pro Ala Ile Pro Thr  
 130 135 140  
 Gln Thr Pro Arg Asp Val Phe Ile Asn Leu Ala Asp Asn Arg Pro Phe  
 145 150 155 160  
 Thr Pro Ser Pro Glu Lys His Leu Ala Leu Phe Ser Ser Arg Glu Glu  
 165 170 175  
 Gly Phe Tyr Val Phe Val Val Gly Val Arg Ala Ile Ala Lys Leu Phe  
 180 185 190  
 Gly Leu Arg Pro His Ile Val Phe Arg Asp Arg Leu Thr Leu Pro Thr  
 195 200 205  
 Gln Glu Leu Lys Thr Ile Ala His Leu His Thr Val Ser Gly Pro Phe  
 210 215 220  
 Pro Ser Gly Ser Pro Ser Ile His Ile His Ser Val Ala Pro Ile Thr  
 225 230 235 240  
 Asn Glu Lys Glu Val Val Phe Thr Leu Ser Phe Gln Asp Val Leu Thr  
 245 250 255  
 Ile Gly His Leu Phe Leu Lys Gly Arg Ile Leu His Glu Gln Val Thr  
 260 265 270  
 Ala Leu Ala Gly Thr Ala Leu Lys Ser Ser Leu Arg Arg Tyr Val Ile  
 275 280 285  
 Thr Thr Lys Gly Ala Ser Phe Ser Ser Leu Ile Asn Leu Asn Asp Ile  
 290 295 300  
 Ser Asp Asn Asp Thr Leu Ile Ser Gly Asp Pro Leu Thr Gly Arg Leu  
 305 310 315 320  
 Cys Lys Lys Glu Glu Glu Pro Phe Leu Gly Phe Arg Asp His Ser Ile  
 325 330 335  
 Ser Val Leu His Asn Pro Thr Lys Arg Glu Leu Phe Ser Phe Leu Arg  
 340 345 350  
 Ile Gly Phe Asn Lys Pro Thr Phe Thr Lys Thr Tyr Leu Ser Gly Phe  
 355 360 365  
 Phe Lys Lys Lys Arg Thr Tyr Thr Asn Pro Asp Thr Asn Leu His Gly  
 370 375 380  
 Glu Thr Arg Pro Ile Ile Asp Thr Asp Ile Tyr Asp Lys Val Met Pro  
 385 390 395 400  
 Met Arg Ile Pro Val Val Pro Leu Ile Lys Ala Val Ile Thr Lys Asn  
 405 410 415  
 Phe Asp Leu Ala Asn Glu Leu Gly Phe Leu Glu Val Cys Gly Glu Asp  
 420 425 430  
 Phe Ala Leu Pro Thr Leu Ile Asp Pro Ser Lys Thr Glu Met Leu Thr

435 440 445  
 Ile Val Lys Glu Ser Leu Ile Glu Tyr Ala Lys Glu Ser Gly Ile Leu  
 450 455 460  
 Thr Pro His Gln Asp  
 465  
 <210>794  
 <211>313  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>794  
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 1 5 10 15  
 Thr Ala Ala Ile Arg Asp Leu Leu Ala Glu Thr His Leu Ser Pro Lys  
 20 25 30  
 Asp Leu Ile Ala Pro Phe Phe Val Lys Tyr Gly Asn Asn Ile Lys Glu  
 35 40 45  
 Glu Ile Pro Ser Leu Pro Gly Val Phe Arg Trp Ser Leu Asp Leu Leu  
 50 55 60  
 Leu Lys Glu Ile Glu Arg Leu Cys Thr Tyr Gly Leu Arg Ala Val Met  
 65 70 75 80  
 Leu Phe Pro Ile Ile Pro Asp Asp Leu Lys Asp Ala Tyr Gly Ser Tyr  
 85 90 95  
 Ser Ser Asn Pro Lys Asn Ile Leu Cys His Ser Ile His Glu Ile Lys  
 100 105 110  
 Asn Ala Phe Pro His Leu Cys Leu Ile Ser Asp Ile Ala Leu Asp Pro  
 115 120 125  
 Tyr Thr Thr His Gly His Asp Gly Ile Phe Leu Asn Gly Glu Val Leu  
 130 135 140  
 Asn Asp Glu Ser Val Arg Ile Phe Gly Asn Ile Ala Thr Leu His Ala  
 145 150 155 160  
 Glu Met Gly Ala Asp Ile Val Ala Pro Ser Asp Met Met Asp Gly Arg  
 165 170 175  
 Ile Gly Tyr Ile Arg Ser Lys Leu Asp Gln Ser Gly Tyr Ser Lys Thr  
 180 185 190  
 Ser Ile Met Ser Tyr Ser Val Lys Tyr Ala Ser Cys Leu Tyr Ser Pro  
 195 200 205  
 Phe Arg Asp Ala Leu Ser Ser His Val Thr Ser Gly Asp Lys Lys Gln  
 210 215 220  
 Tyr Gln Met Asn Pro Lys Asn Val Leu Glu Ala Leu Leu Glu Ser Ser  
 225 230 235 240  
 Leu Asp Glu Glu Glu Gly Ala Asp Ile Leu Met Val Lys Pro Ala Gly  
 245 250 255  
 Leu Tyr Leu Asp Val Ile Tyr Arg Ile Arg Gln Asn Thr Cys Leu Pro  
 260 265 270  
 Leu Ala Ala Tyr Gln Val Ser Gly Glu Tyr Ala Met Ile Leu Ser Ala  
 275 280 285  
 Phe Gln Gln Gly Trp Leu Asp Lys Glu Thr Leu Phe His Glu Ser Leu  
 290 295 300  
 Ile Ala Ile Lys Arg Leu Ala Gln Ile  
 305 310  
 <210>795  
 <211>128  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>795  
 Phe Ser Gly Arg Cys Pro Phe Ser Phe Glu Val Phe Met Leu Gly Lys  
 1 5 10 15  
 Glu Glu Glu Phe Thr Cys Lys Gln Lys Gln Cys Leu Ser His Phe Val  
 20 25 30  
 Thr Asn Leu Thr Ser Asp Val Phe Ala Leu Lys Asn Leu Pro Glu Val  
 35 40 45  
 Val Lys Gly Ala Leu Phe Ser Lys Tyr Ser Arg Ser Val Leu Gly Leu  
 50 55 60  
 Arg Ala Leu Leu Leu Lys Glu Phe Leu Ser Asn Glu Glu Asp Gly Asp

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65              70              75              80
Val Cys Asp Glu Ala Tyr Asp Phe Glu Thr Asp Val Gln Lys Ala Ala
      85              90              95
Asp Phe Tyr Gln Arg Val Leu Asp Asn Phe Gly Asp Asp Ser Val Gly
      100            105            110
Glu Leu Gly Gly Ala Pro Gly Tyr Gly Lys Cys Leu Tyr Phe Gly Cys
      115            120            125
<210>796
<211>431
<212>PRT
<213>Chlamydia pneumoniae
<400>796
Glu Ser Leu Ala Glu His Leu Ala Met Glu Asn Val Ser Ile Leu Ala
 1              5              10              15
Ala Lys Val Leu Glu Asp Ala Arg Ile Gly Gly Ser Pro Leu Glu Lys
      20            25            30
Ser Thr Arg Tyr Val Tyr Phe Asp Gln Lys Val Arg Gly Glu Tyr Leu
      35            40            45
Tyr Tyr Arg Asp Pro Ile Leu Met Thr Ser Ala Phe Lys Asp Met Phe
      50            55            60
Leu Gly Thr Cys Asp Phe Leu Phe Asp Thr Tyr Ser Ala Leu Ile Pro
      65            70            75            80
Gln Val Arg Ala Tyr Phe Glu Lys Leu Tyr Pro Lys Asp Ser Lys Thr
      85            90            95
Pro Ala Ser Ala Tyr Ala Thr Ser Leu Arg Ala Lys Val Leu Asp Cys
      100           105           110
Ile Arg Gly Leu Leu Pro Ala Ala Thr Leu Thr Asn Leu Gly Phe Phe
      115           120           125
Gly Asn Gly Arg Phe Trp Gln Asn Leu Ile His Lys Leu Gln Gly His
      130           135           140
Asn Leu Ala Glu Leu Arg Arg Leu Gly Asp Glu Ser Leu Thr Glu Leu
      145           150           155           160
Met Lys Val Ile Pro Ser Phe Val Ser Arg Ala Glu Pro His His His
      165           170           175
His His Gln Ala Met Met Gln Tyr Arg Arg Ala Leu Lys Glu Gln Leu
      180           185           190
Lys Gly Leu Ala Glu Gln Ala Thr Phe Ser Glu Glu Met Ser Ser Ser
      195           200           205
Pro Ser Val Gln Leu Val Tyr Gly Asp Pro Asp Gly Ile Tyr Lys Val
      210           215           220
Ala Ala Gly Phe Leu Phe Pro Tyr Ser Asn Arg Ser Leu Thr Asp Leu
      225           230           235           240
Ile Asp Tyr Cys Lys Lys Met Pro His Glu Asp Leu Val Gln Ile Leu
      245           250           255
Glu Ser Ser Val Ser Ala Arg Glu Asn Arg Arg His Lys Ser Pro Arg
      260           265           270
Gly Leu Glu Cys Val Glu Phe Gly Phe Asp Ile Leu Ala Asp Phe Gly
      275           280           285
Ala Tyr Arg Asp Leu Gln Arg His Arg Thr Leu Thr Gln Glu Arg Gln
      290           295           300
Leu Leu Ser Thr His His Gly Tyr Asn Phe Pro Val Glu Leu Leu Asp
      305           310           315           320
Thr Pro Met Glu Lys Ser Tyr Arg Glu Ala Met Glu Arg Ala Asn Glu
      325           330           335
Thr Tyr Asn Glu Ile Val Gln Glu Phe Pro Glu Glu Ala Gln Tyr Met
      340           345           350
Val Pro Met Ala Tyr Asn Ile Arg Trp Phe Phe His Val Asn Ala Arg
      355           360           365
Ala Leu Gln Trp Ile Cys Glu Leu Arg Ser Gln Pro Gln Gly His Gln
      370           375           380
Asn Tyr Arg Thr Ile Ala Thr Gly Leu Val Arg Glu Val Val Lys Phe
      385           390           395           400
Asn Pro Met Tyr Glu Leu Phe Phe Lys Phe Val Asp Tyr Ser Asp Ile
      405           410           415

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Asp Leu Gly Arg Leu Asn Gln Glu Met Arg Lys Glu Pro Thr Thr  
 420 425 430  
 <210>797  
 <211>292  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>797  
 Gly Thr Leu Val Leu His Ala Leu Asp Thr Tyr Arg Pro Ser Ile Glu  
 1 5 10 15  
 Ser Ala Ile Glu Lys Ala Leu Glu Gly Phe Gly Pro Ile Gly His Pro  
 20 25 30  
 Ile Arg Ser Pro Val Glu Tyr Ala Leu Gln Gly Gly Gly Lys Arg Leu  
 35 40 45  
 Arg Pro Gly Leu Val Cys Met Met Ala Gln Gly Leu Gly Leu Asn His  
 50 55 60  
 Asp Val Met Asp Ser Ala Leu Ala Val Glu Phe Val His Thr Ser Thr  
 65 70 75 80  
 Leu Ile Ala Asp Asp Leu Pro Cys Met Asp Asn Asp Asp Glu Arg Arg  
 85 90 95  
 Gly Arg Pro Thr Val His Lys Ala Phe Asp Glu Ala Thr Ala Leu Leu  
 100 105 110  
 Ala Ser Tyr Ala Leu Ile Pro Ala Ala Tyr Ser His Leu Arg Leu Asn  
 115 120 125  
 Ala Lys Lys Leu Lys Glu Gln Gly Cys Asp Pro Arg Glu Ile Asp Ile  
 130 135 140  
 Ala Tyr Asn Ile Ile Gly Asp Ile Thr Asp Lys Asn Ile Gly Cys Ser  
 145 150 155 160  
 Gly Val Leu Gly Gly Gln Tyr Asp Asp Met Phe Phe Ser Asn Arg Gly  
 165 170 175  
 Gln Glu His Val Gln Ser Ile Met Ile Lys Lys Thr Gly Ser Leu Phe  
 180 185 190  
 Glu Ile Ala Cys Ile Ser Gly Trp Leu Phe Gly Gly Gly Asp Pro Gln  
 195 200 205  
 Phe Ala Pro Ile Ile Thr Ser Phe Ser Asn Asn Phe Gly Leu Leu Phe  
 210 215 220  
 Gln Ile Lys Asp Asp Phe Ser Asp Leu Gln Lys Asp Ser Gln Gln Ile  
 225 230 235 240  
 Gly Leu Asn Tyr Ala Leu Leu Phe Gly Glu Lys Ala Ala Leu Glu Leu  
 245 250 255  
 Leu Ala Arg Ser Gln Asn Asn Cys Leu Glu Leu Leu Asp Arg Leu Ser  
 260 265 270  
 Ala Gly Gly Leu Lys Asn Ser Ser Glu Phe Glu Thr Ile Ile Ser Ser  
 275 280 285  
 Leu Gly Ser Phe  
 290  
 <210>798  
 <211>208  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>798  
 Met Thr Tyr Leu Ala Ser Ser Ile Phe Ser Pro Glu Asp Phe Leu Tyr  
 1 5 10 15  
 Pro Glu Ile Ile Ser Lys Ala His Tyr Thr Trp Asp Ile Leu Asp Leu  
 20 25 30  
 Met Asp Gln Met Leu Glu Asn His Val Phe Ser Gly Ile His Gly Thr  
 35 40 45  
 Val Glu Ser Gly Val Thr Leu Lys Asn Ile Glu Lys Ile Glu Ile Ala  
 50 55 60  
 Glu Asp Ala Tyr Val Glu Ser Gly Ala Tyr Ile Val Gly Pro Cys Ile  
 65 70 75 80  
 Leu Gly Ser Gln Thr Glu Val Arg His Gly Ala Tyr Leu Arg Gly Asn  
 85 90 95  
 Val Ile Thr Gly Ser Arg Cys Val Val Gly His Cys Thr Glu Ile Lys  
 100 105 110

Asn Ser Tyr Leu Gly His His Thr Lys Ala Ala His Phe Ala Tyr Leu  
 115 120 125  
 Gly Asp Ser Val Leu Ser Ser Glu Val Asn Leu Gly Ala Gly Val Arg  
 130 135 140  
 Cys Ala Asn Phe Arg Leu Asp Gly Arg Asn Ile Tyr Val Arg Ser Thr  
 145 150 155 160  
 Ser Asp Lys Ser Lys Lys Ile Asp Thr Gly Arg Arg Lys Leu Gly Ala  
 165 170 175  
 Phe Leu Gly Lys Gly Val Ala Ile Gly Cys Asn Val Val Ile Asn Pro  
 180 185 190  
 Gly Gln His Ile Leu Pro His Thr Arg Ile Arg Pro Gly Gln Val Ile  
 195 200 205

&lt;210&gt;799

&lt;211&gt;241

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;799

Asn Leu Phe Cys Phe His Met Ile Gly Asp Lys Ile Ile Leu Phe Val  
 1 5 10 15  
 Thr Glu Asp Leu Ser Leu Ser Ser Gln Leu Lys Asp Leu Ala Ser Gln  
 20 25 30  
 Arg Ser Asp Tyr Gln Ile Leu Val Ser Pro Val Phe Pro Thr Ser Phe  
 35 40 45  
 Glu Ser Val Ala Ile Phe Cys Glu Tyr Leu Leu Leu Pro Glu Gln Ile  
 50 55 60  
 Phe Ser Pro Gly Ile Phe Pro Glu Glu Asp Leu Ile Val Leu Phe Asp  
 65 70 75 80  
 Thr Phe Gln Glu Glu Ala Ile Thr Lys Val Leu Asn Gln Gly Ala Thr  
 85 90 95  
 Gly Tyr Leu Leu Arg Pro Ile Thr Ala Lys Val Leu Asp Ala Val Ile  
 100 105 110  
 Arg Ala Phe Leu Arg Gln His Glu Val Leu Glu His Ser Ile Pro Asp  
 115 120 125  
 Thr Met Thr Phe Gly Asp His Thr Phe Arg Val Leu Asn Leu Val Ile  
 130 135 140  
 Glu Ser Pro Glu Gly Ser Val Tyr Leu Thr Pro Ser Glu Ala Gly Ile  
 145 150 155 160  
 Leu Lys Lys Leu Leu Ile Asn Arg Gly His Leu Cys Leu Arg Lys Asn  
 165 170 175  
 Leu Leu Ala Glu Ile Lys Gly Asn Thr Lys Glu Ile Ile Ala Arg Asn  
 180 185 190  
 Val Asp Val His Ile Ala Ser Leu Arg Lys Lys Leu Gly Pro Tyr Gly  
 195 200 205  
 Ser Lys Ile Val Thr Ile Arg Gly Val Gly Tyr Leu Phe Ser Asp Ala  
 210 215 220  
 Asp Ser Ile Pro Leu Gln Asn His Asp Asn Thr Ala His Pro Ile Glu  
 225 230 235 240  
 Glu

&lt;210&gt;800

&lt;211&gt;609

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;800

Met Phe Arg Cys Ile Leu Phe Gly Ile Phe Leu Leu Thr Cys Phe Ser  
 1 5 10 15  
 Ser Gly Gly Val Leu Tyr Tyr Leu Phe Cys Ser His Asp Phe Ser Ile  
 20 25 30  
 Gly Pro Lys Glu Lys Ser Arg Ser Val Trp Ile Glu Glu Glu Lys Glu  
 35 40 45  
 Phe Thr Asp Ser Val Leu His His Leu Pro Ser Gln His Gln His Leu  
 50 55 60  
 His Ile Leu Cys Phe Gln Gly Phe Leu Leu Gln Lys Gln Gln Lys Phe  
 65 70 75 80

Ser Gln Ala Glu Lys Ile Phe Ser Lys Val Tyr Asp Glu Ala Gln Asp  
 85 90 95  
 Gly Pro Phe Leu Phe Lys Glu Glu Ile Leu Gly Ser Arg Leu Ile Asn  
 100 105 110  
 Ser Phe Phe Leu Glu Lys Thr Asp Val Met Glu Thr Ile Leu Cys Leu  
 115 120 125  
 Leu Asn Gln Arg Cys Pro Asn Ser Pro Tyr Tyr His Leu Phe Lys Ala  
 130 135 140  
 Leu Val Cys Tyr Lys Gln Lys Leu Tyr Arg Glu Val Ile Glu Gln Leu  
 145 150 155 160  
 Ala Tyr Trp Gln Glu Glu Lys Thr Arg Ala Leu Ala Pro Leu Leu Asn  
 165 170 175  
 Ile Ser Ile Glu Gln Leu Leu Thr Asp Phe Leu Leu Asp Tyr Ile Ser  
 180 185 190  
 Ala His Ser Leu Ile Glu Gln Lys Met Phe Pro Glu Gly Arg Val Ile  
 195 200 205  
 Leu Asn Arg Asn Ile Asn Arg Leu Leu Lys His Glu Cys Glu Trp Asn  
 210 215 220  
 Ala Lys Thr Tyr Asp Arg Ile Ala Ile Leu Leu Ser Arg Ser Tyr Phe  
 225 230 235 240  
 Leu Glu Leu Val Glu Ser Lys Ser Ala Asp Ile Tyr Phe Asp Tyr Tyr  
 245 250 255  
 Glu Met Val Leu Phe Tyr Leu Lys Lys Ile Tyr Ile Leu Glu Gln Cys  
 260 265 270  
 Pro Tyr Ala Glu Leu Leu Pro Glu Glu Glu Leu Val Ser Leu Ile Met  
 275 280 285  
 Glu His Val Phe Ile Leu Pro Lys Asp Lys Leu Tyr Pro Leu Ile Gln  
 290 295 300  
 Leu Leu Glu Met Trp Gln Lys His Tyr Val His Pro Asn Ser Ser Leu  
 305 310 315 320  
 Val Val Gln Ile Leu Val Asp Arg Phe Ser Thr His Met Glu Gly Ala  
 325 330 335  
 Ile Arg Phe Cys Glu Ala Leu Val Ser Phe Ser Gly Leu Glu Glu Leu  
 340 345 350  
 His Gln Gln Ile Ile Thr Thr Phe Glu Glu Leu Leu Ser Asn Lys Val  
 355 360 365  
 Gln Gln Ile Lys Thr Glu Glu Ala Lys Gln Cys Val Ala Leu Leu His  
 370 375 380  
 Ile Leu Asp Pro Ser Ile Ser Ile Ser Glu Lys Leu Ala Leu Ser Ser  
 385 390 395 400  
 Asp Thr Leu Gln Asn Ile Val Ser Gly Asp Asp Glu Gln His Thr Lys  
 405 410 415  
 Leu Arg Asn Tyr Leu Asp Leu Trp Glu Ala Ile Gln Ser Tyr Asp Ile  
 420 425 430  
 Asp Arg Gln Gln Leu Val His His Leu Val Tyr Gly Ala Lys Asp Leu  
 435 440 445  
 Trp Lys Lys Gly Gly Ser Asp Glu Lys Ala Leu Asn Leu Leu Gln Leu  
 450 455 460  
 Val Leu Arg Phe Thr Ser Tyr Asp Ile Glu Cys Glu Ser Val Val Phe  
 465 470 475 480  
 Leu Phe Ile Lys Gln Ala Tyr Lys Gln Ala Leu Ser Ser His Ala Ile  
 485 490 495  
 Ala Arg Leu Leu Lys Leu Glu Lys Phe Ile Ser Glu Ala Asn Ile Pro  
 500 505 510  
 Ser Ile Val Ile Ser Glu Ala Glu Lys Ala Asn Phe Leu Ala Asp Ala  
 515 520 525  
 Glu Tyr Leu Phe Ala His Glu Asp Tyr Asp Lys Cys Tyr Leu Tyr Ser  
 530 535 540  
 Met Trp Leu Thr Lys Val Ala Pro Ser Pro Gln Ser Tyr Arg Leu Ala  
 545 550 555 560  
 Gly Leu Cys Leu Met Glu Asn Lys Arg Tyr Asp Glu Ala Leu Glu Phe  
 565 570 575  
 Leu Cys Met Leu Ser Pro Asn Asp Ser Ile Asn Asp Tyr Lys Thr Gln  
 580 585 590

Lys Ala Leu Ala Phe Cys Gln Lys His Gln Ser Lys Asp Arg Ala Ala  
 595 600 605  
 Ser

&lt;210&gt;801

&lt;211&gt;295

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;801

Gly Trp Ala Leu His Thr Glu Phe Ala Pro Phe Leu Glu Asp Leu Val  
 1 5 10 15  
 His Gln Gln Val Ile Ser Pro Leu Asp Ile Ala Phe Ala Ser Lys His  
 20 25 30  
 Ile Ser Ser Asp Phe Glu Glu Ser Phe Val Phe Leu Ala Val Ser Ser  
 35 40 45  
 Ala Leu Trp Arg Tyr Gly His Pro Phe Leu Ser Leu Glu Glu Asn Arg  
 50 55 60  
 Ile Arg Pro Ser Leu Gly Gly Ile Ser Glu Thr Asp Leu Tyr Arg Gly  
 65 70 75 80  
 Phe His Asn Leu Pro Lys Glu Val Arg Asp Lys Leu Phe Val Val Val  
 85 90 95  
 Ser Gly Arg Leu Tyr Leu Arg Ser Leu Tyr Thr Ile Arg Ser Lys Leu  
 100 105 110  
 Leu Asp Lys Leu Ser Leu Leu Cys Ser Ala Thr Pro Asn Tyr Phe Pro  
 115 120 125  
 Pro Ser Ile Asp Ser Ser Ile Leu Ser Glu Glu Gln Asn Phe Ile Phe  
 130 135 140  
 Asn Lys Ile Thr Gln Gly Cys Phe Ser Ile Val Ser Gly Gly Pro Gly  
 145 150 155 160  
 Thr Gly Lys Thr Phe Leu Ala Ala Gln Leu Ile Leu Ser Leu Val Lys  
 165 170 175  
 Gln Gln Pro Lys Leu Arg Ile Ala Ile Val Ser Pro Thr Gly Lys Ala  
 180 185 190  
 Thr Ser His Ile Arg Gln Ile Leu Met Lys Tyr Asn Ile Phe Asp Asp  
 195 200 205  
 Met Val Leu Met Gln Thr Val His His Phe Leu Gln Glu Tyr Ala Tyr  
 210 215 220  
 Arg Arg Tyr Asn Ser Ile Asp Val Leu Leu Val Asp Glu Gly Ser Met  
 225 230 235 240  
 Val Thr Phe Asp Leu Leu Tyr Ser Leu Val Gln Thr Leu Gln Gly Tyr  
 245 250 255  
 Glu Lys Asp Lys Lys Leu Tyr Thr Ser Ser Leu Ile Ile Leu Gly Asp  
 260 265 270  
 Thr Asn Gln Leu Pro Pro Ile Gly Ile Gly Val Gly Asn Pro Leu Gln  
 275 280 285  
 Asp Leu Ile Gly Tyr Phe Pro  
 290 295

&lt;210&gt;802

&lt;211&gt;205

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;802

Asp Ile Ser His Glu Asn Thr Phe Phe Leu Lys Thr Ser His Arg Ala  
 1 5 10 15  
 Lys Thr Gly Val Val Asp Gln Leu Thr Gln Ser Val Leu Arg Gly Glu  
 20 25 30  
 Met Ile Ser Phe Ser Pro Leu Pro Ser Ile Ser Ser Ala Ile Glu Val  
 35 40 45  
 Leu Lys Asn Arg Phe Val Lys Ser Leu Arg Gln Ser Glu Ala Arg Leu  
 50 55 60  
 Cys Val Leu Thr Pro Met Arg His Gly Pro Trp Gly Val Leu Asn Leu  
 65 70 75 80  
 Asn Thr Met Ile His Gln Arg Leu Ala Arg Ser Asp Pro Asp Leu Arg  
 85 90 95



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Ile Pro Ile Met Val Thr Ser Arg Tyr Glu Thr Trp Gly Leu Phe Asn
      100      105      110
Gly Asp Thr Gly Leu Leu Cys Leu Lys Thr Gln Lys Leu His Phe Pro
      115      120      125
Gln His Glu Pro Ile Asp Ser Arg Ala Leu Ser Gln Tyr Val Tyr Asn
      130      135      140
Tyr Val Met Ser Val His Lys Ser Gln Gly Ser Glu Tyr Asp Glu Val
      145      150      155      160
Ile Val Ile Ile Pro Lys Gly Ser Glu Val Phe Gly Val Ser Ile Leu
      165      170      175
Tyr Thr Ala Ile Thr Arg Ala Lys Tyr Arg Val Ser Val Trp Arg Asp
      180      185      190
Pro Glu Thr Leu His Lys Thr Ile Lys Lys Ser Asn Tyr
      195      200      205

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&lt;210&gt;803

&lt;211&gt;283

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;803

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Ile Met Ala Thr Ala His Leu Gly Arg Gln Ala Leu Leu His Leu Arg
  1      5      10      15
Ser Trp Thr Pro Ala Ile Arg Ala Ser Gly Asn Leu Phe Arg Gln Gln
      20      25      30
Ser Met Ser Leu His Asn Asn Val Leu Phe Ala Gly Asp Ile Val Gly
      35      40      45
Ala Ile Lys Asn Ser Thr Ala Ile Ser Arg His Ala Leu Gly Ser Ser
      50      55      60
His Tyr Ala His Ala Ala Leu Gln Lys Thr Glu Gly Phe Leu Gly Ala
      65      70      75      80
Ala Asp Gly Val Asn Thr Ala Val Ala Gly Ala Met Leu Trp Gly Gln
      85      90      95
Leu Leu Asn Gly Ser Met Ile Phe Glu Thr Asp Glu Glu Thr Gly Glu
      100      105      110
Leu Arg Arg Cys Asn Glu Ala Asp Ala Glu Gly Cys Met Thr Gln Lys
      115      120      125
Leu Gln Arg Arg Ser Ala Leu Thr Ile Thr Gly Lys Val Ala Arg Leu
      130      135      140
Ala Ser Lys Thr Leu Gly Thr Ala Thr Phe Leu His Glu Met Asp Val
      145      150      155      160
Val Ser Leu Gly Ala Asn Ala Asn Lys Ile Gly Cys Lys Val Thr Ser
      165      170      175
Cys Leu Asn Leu Val Ala Thr Gly Cys Ser Leu Thr Glu Ser Ser Ile
      180      185      190
Ser Leu Tyr Arg Ile Leu Ser Thr Arg Pro Glu Thr Ile Ser Asp Pro
      195      200      205
Glu Asn Arg Asn Lys Pro Ser Ala Glu Phe Ala Ala Arg Ser Lys Ala
      210      215      220
Ile Arg Asn Ala Phe Ile Ala Trp Leu Gly Asp Val Val Asp Leu Val
      225      230      235      240
Cys Asp Ala Leu Gly Thr Leu Ser Leu Phe Leu Pro Ala Ile Leu Gly
      245      250      255
Val His Ala Val Leu Ile Met Ala Ile Leu Gly Leu Ile Ser Cys Val
      260      265      270
Ile Asn Phe Val Lys Asp Tyr Ala Lys Ile Gly
      275      280

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&lt;210&gt;804

&lt;211&gt;88

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;804

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Tyr Thr Lys Lys Thr Ser Ala Glu Lys Arg Ile Leu Thr Ala Gln Lys
  1      5      10      15
Arg Glu Leu Ile Asn His Ser Phe Lys Ser Lys Val Lys Thr Ile Val
      20      25      30

```

Lys Lys Phe Glu Ala Ser Leu Lys Leu Asp Asp Thr Gln Ala Thr Leu  
 35 40 45  
 Ser Asn Leu Gln Ser Val Tyr Ser Val Val Asp Lys Ala Val Lys Arg  
 50 55 60  
 Gly Ile Phe Lys Asp Asn Lys Ala Ala Arg Ile Lys Ser Lys Ala Thr  
 65 70 75 80  
 Leu Lys Val Asn Ala Arg Ala Ser  
 85

&lt;210&gt;805

&lt;211&gt;407

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;805

Tyr Lys Asp Leu Phe Phe Met Leu Leu Val Arg Lys Trp Leu His Thr  
 1 5 10 15  
 Cys Phe Lys Tyr Trp Ile Tyr Phe Leu Pro Val Val Thr Leu Leu Leu  
 20 25 30  
 Pro Leu Val Cys Tyr Pro Phe Leu Ser Ile Ser Gln Lys Ile Tyr Gly  
 35 40 45  
 Tyr Phe Val Phe Thr Thr Ile Ser Ser Leu Gly Trp Phe Phe Ala Leu  
 50 55 60  
 Arg Arg Arg Glu Asn Gln Leu Lys Thr Ala Ala Val Gln Leu Leu Gln  
 65 70 75 80  
 Thr Lys Ile Arg Lys Leu Thr Glu Asn Asn Glu Gly Leu Arg Gln Ile  
 85 90 95  
 Arg Glu Ser Leu Lys Glu His Gln Gln Glu Ser Ala Gln Leu Gln Ile  
 100 105 110  
 Gln Ser Gln Lys Leu Lys Asn Ser Leu Phe His Leu Gln Gly Leu Leu  
 115 120 125  
 Val Lys Thr Lys Gly Glu Gly Gln Lys Leu Glu Thr Leu Leu Leu His  
 130 135 140  
 Arg Thr Glu Glu Asn Arg Cys Leu Lys Met Gln Val Asp Ser Leu Ile  
 145 150 155 160  
 Gln Glu Cys Gly Glu Lys Thr Glu Glu Val Gln Thr Leu Asn Arg Glu  
 165 170 175  
 Leu Ala Glu Thr Leu Ala Tyr Gln Gln Ala Leu Asn Asp Glu Tyr Gln  
 180 185 190  
 Ala Thr Phe Ser Glu Gln Arg Asn Met Leu Asp Lys Arg Gln Ile Tyr  
 195 200 205  
 Ile Gly Lys Leu Glu Asn Lys Val Gln Asp Leu Met Tyr Glu Ile Arg  
 210 215 220  
 Asn Leu Leu Gln Leu Glu Ser Asp Ile Ala Glu Asn Ile Pro Ser Gln  
 225 230 235 240  
 Glu Ser Asn Ala Val Thr Gly Asn Ile Ser Leu Gln Leu Ser Ser Glu  
 245 250 255  
 Leu Lys Lys Ile Ala Phe Lys Ala Glu Asn Ile Glu Ala Ala Ser Ser  
 260 265 270  
 Leu Thr Ala Ser Arg Tyr Leu His Thr Asp Thr Ser Val His Asn Tyr  
 275 280 285  
 Ser Leu Glu Cys Arg Gln Leu Phe Asp Ser Leu Arg Glu Glu Asn Leu  
 290 295 300  
 Gly Met Leu Phe Val Tyr Ala Arg Gln Ser Gln Arg Ala Val Phe Ala  
 305 310 315 320  
 Asn Ala Leu Phe Lys Thr Trp Thr Gly Tyr Cys Ala Glu Asp Phe Leu  
 325 330 335  
 Lys Phe Gly Ser Asp Ile Val Ile Ser Gly Gly Lys Gln Trp Met Glu  
 340 345 350  
 Asp Leu His Ser Ser Arg Glu Glu Cys Ser Gly Arg Leu Val Ile Lys  
 355 360 365  
 Thr Lys Ser Arg Gly His Leu Pro Phe Arg Tyr Cys Leu Met Ala Leu  
 370 375 380  
 Asn Lys Gly Pro Leu Cys Tyr His Val Leu Gly Val Leu Tyr Pro Leu  
 385 390 395 400  
 His Lys Glu Val Leu Gln Ser

405

&lt;210&gt;806

&lt;211&gt;591

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;806

Leu Thr Lys Leu Ser Ser Lys Ala Arg Asn Pro Leu Val Leu Phe Gln  
 1 5 10 15  
 Val Arg Lys Leu Phe Met Asn Thr Gln Asn Ser Gln Ala Thr Glu Val  
 20 25 30  
 Ser Ser Glu Glu Glu Ser Gln Lys Lys Leu Glu Glu Leu Val Ala Leu  
 35 40 45  
 Ala Lys Glu Gln Gly Phe Ile Thr Tyr Glu Glu Ile Asn Glu Ile Leu  
 50 55 60  
 Pro Met Ser Phe Asp Thr Pro Glu Gln Ile Asp Gln Val Leu Ile Phe  
 65 70 75 80  
 Leu Thr Gly Met Asp Ile Gln Val Leu Asn Gln Ile Asp Val Glu Arg  
 85 90 95  
 Gln Lys Glu Lys Lys Lys Glu Ala Lys Glu Leu Glu Gly Leu Ala Arg  
 100 105 110  
 Arg Thr Glu Gly Thr Pro Asp Asp Pro Val Arg Met Tyr Leu Lys Glu  
 115 120 125  
 Met Gly Thr Val Pro Leu Leu Thr Arg Glu Glu Glu Val Glu Ile Ser  
 130 135 140  
 Lys Arg Ile Glu Lys Ala Gln Val Gln Ile Glu Arg Ile Ile Leu Arg  
 145 150 155 160  
 Phe Arg Tyr Ser Ala Lys Glu Ala Ile Ser Ile Ala His Tyr Leu Ile  
 165 170 175  
 Ser Gly Lys Glu Arg Phe Asp Lys Ile Ile Ser Glu Lys Glu Val Glu  
 180 185 190  
 Asp Lys Thr His Phe Leu Lys Leu Leu Pro Lys Leu Ile Thr Leu Leu  
 195 200 205  
 Lys Glu Glu Asp Thr Tyr Leu Glu Asn Leu Leu Leu Ser Leu Lys Gln  
 210 215 220  
 Pro Asp Leu Ser Lys Gln Glu Ala Ala Lys Leu Asn Asp Ser Leu Glu  
 225 230 235 240  
 Lys Cys Arg Ile Arg Thr Gln Ala Tyr Leu Arg Cys Phe His Cys Arg  
 245 250 255  
 His Asn Val Thr Glu Asp Phe Gly Glu Val Val Phe Lys Ala Tyr Asp  
 260 265 270  
 Ser Phe Leu His Leu Glu Gln Gln Ile Asn Asp Leu Lys Val Arg Ala  
 275 280 285  
 Glu Arg Asn Lys Phe Ala Ala Ala Lys Leu Ala Ala Lys Arg Lys  
 290 295 300  
 Leu Tyr Lys Arg Glu Val Ala Ala Gly Arg Thr Leu Glu Glu Phe Lys  
 305 310 315 320  
 Lys Asp Val Arg Met Leu Gln Arg Trp Met Asp Lys Ser Gln Glu Ala  
 325 330 335  
 Lys Lys Glu Met Val Glu Ser Asn Leu Arg Leu Val Ile Ser Ile Ala  
 340 345 350  
 Lys Lys Tyr Thr Asn Arg Gly Leu Ser Phe Leu Asp Leu Ile Gln Glu  
 355 360 365  
 Gly Asn Met Gly Leu Met Lys Ala Val Glu Lys Phe Glu Tyr Arg Arg  
 370 375 380  
 Gly Tyr Lys Phe Ser Thr Tyr Ala Thr Trp Trp Ile Arg Gln Ala Val  
 385 390 395 400  
 Thr Arg Ala Ile Ala Asp Gln Ala Arg Thr Ile Arg Ile Pro Val His  
 405 410 415  
 Met Ile Glu Thr Ile Asn Lys Val Leu Arg Gly Ala Lys Lys Leu Met  
 420 425 430  
 Met Glu Thr Gly Lys Glu Pro Thr Pro Glu Glu Leu Ala Glu Glu Leu  
 435 440 445  
 Gly Leu Thr Pro Asp Arg Val Arg Glu Ile Tyr Lys Ile Ala Gln His  
 450 455 460

Pro Ile Ser Leu Gln Ala Glu Val Gly Glu Gly Ser Glu Ser Ser Phe  
 465 470 475 480  
 Gly Asp Phe Leu Glu Asp Thr Ala Val Glu Ser Pro Ala Glu Ala Thr  
 485 490 495  
 Gly Tyr Ser Met Leu Lys Asp Lys Met Lys Glu Val Leu Lys Thr Leu  
 500 505 510  
 Thr Asp Arg Glu Arg Phe Val Leu Ile His Arg Phe Gly Leu Leu Asp  
 515 520 525  
 Gly Lys Pro Lys Thr Leu Glu Glu Val Gly Ser Ala Phe Asn Val Thr  
 530 535 540  
 Arg Glu Arg Ile Arg Gln Ile Glu Ala Lys Ala Leu Arg Lys Met Arg  
 545 550 555 560  
 His Pro Ile Arg Ser Lys Gln Leu Arg Ala Phe Leu Asp Leu Leu Glu  
 565 570 575  
 Glu Glu Lys Thr Gly Thr Ser Lys Val Lys Ser Leu Lys Ser Lys  
 580 585 590

&lt;210&gt;807

&lt;211&gt;142

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;807

Pro Cys Ile Lys Asn Ile Ala Leu Val Ile Ala Ile Glu Arg Tyr Gln  
 1 5 10 15  
 Leu Ile Ile Ser Lys Phe Arg Met Trp Leu Phe Leu Gly Cys Ser Val  
 20 25 30  
 Glu Glu Arg His Phe Lys Gln Pro Val Leu Ile Ser Val Thr Phe Ser  
 35 40 45  
 Tyr Asn Glu Val Pro Ser Ala Cys Leu Ser Asp Lys Leu Ser Asp Ala  
 50 55 60  
 Cys Cys Tyr Leu Glu Val Thr Ser Leu Ile Glu Glu Ile Ala Asn Thr  
 65 70 75 80  
 Lys Pro Tyr Ala Leu Ile Glu His Leu Ala Asn Glu Leu Phe Asp Ser  
 85 90 95  
 Leu Val Ile Ser Phe Gly Asp Lys Ala Ser Lys Ile Asp Leu Glu Val  
 100 105 110  
 Glu Lys Glu Arg Pro Pro Val Pro Asn Leu Leu Asn Pro Ile Lys Phe  
 115 120 125  
 Thr Ile Ser Lys Glu Leu Cys Pro Ser Pro Val Leu Ser Ala  
 130 135 140

&lt;210&gt;808

&lt;211&gt;452

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;808

Arg Ala Met Ser Glu Pro Arg Phe Val Cys Leu Ser Leu Gly Ser Asn  
 1 5 10 15  
 Leu Gly Asn Arg Phe Lys Asn Leu Gln Ile Ala Arg Thr Leu Leu Gly  
 20 25 30  
 Glu Gln Ala Val Leu Gly Leu Arg Ser Ser Val Ile Leu Glu Thr Glu  
 35 40 45  
 Ala Leu Leu Leu Pro Gly Ser Pro Pro Glu Trp Asp Leu Pro Tyr Phe  
 50 55 60  
 Asn Ser Val Leu Val Gly Glu Thr Thr Leu Ser Leu Arg Glu Leu Leu  
 65 70 75 80  
 Val Thr Ile Lys Gln Ile Glu Lys Val Val Gly Arg Ala Glu Glu Ser  
 85 90 95  
 Pro Pro Trp Ser Pro Arg Thr Ile Asp Val Asp Ile Leu Leu Tyr Gly  
 100 105 110  
 Asp Glu Ser Phe Cys Cys Asp His Thr Glu Ile Thr Ile Pro Leu Ser  
 115 120 125  
 Asn Leu Leu Ser Arg Pro Phe Leu Ile Ala Leu Ile Ala Ser Leu Cys  
 130 135 140  
 Pro Tyr Arg Arg Phe Cys Thr Gln Gly Ser Pro Tyr His Asn Phe Thr  
 145 150 155 160

Phe Gly Glu Leu Ala His His Leu Pro Ser Pro Pro Gly Met Ile Arg  
 165 170 175  
 Arg Ser Leu Ser Pro Asp Thr Met Leu Met Gly Val Val Asn Val Thr  
 180 185 190  
 Asn Asp Ser Met Ser Asp Gly Gly Met Phe Leu Asp Pro Glu Lys Ala  
 195 200 205  
 Val Ala Gln Ala Glu Lys Leu Phe Thr Glu Gly Ala Ala Val Ile Asp  
 210 215 220  
 Phe Gly Ala Gln Ala Thr Asn Pro Lys Val Lys Gln Phe Leu Ser Val  
 225 230 235 240  
 Asp Gln Glu Trp Glu Arg Leu Glu Pro Val Leu Arg Leu Leu Lys Glu  
 245 250 255  
 Thr Trp Ser Asn Arg Lys Gln Tyr Pro Ile Ile Ser Leu Asp Thr Phe  
 260 265 270  
 Tyr Pro Glu Ile Ile Leu Arg Ala Met Asp Ile Tyr Pro Ile Gln Trp  
 275 280 285  
 Ile Asn Asp Val Ser Gly Gly Ser Gln Ser Met Ala Glu Val Ala Arg  
 290 295 300  
 Asp Cys Glu Leu Ser Leu Val Met Asn His Ser Ser Ser Leu Pro Val  
 305 310 315 320  
 Asp Pro Lys Asn Ile Leu Ser Phe Ser Val Pro Ile Gly Glu Gln Leu  
 325 330 335  
 Leu Ser Trp Gly Glu Lys Gln Leu Lys Met Phe Ser Asp Val Gly Leu  
 340 345 350  
 Asn Ala Asn Gln Val Ile Phe Asp Pro Gly Ile Gly Phe Gly Lys Gly  
 355 360 365  
 Ala Ala Gln Ser Leu Ala Thr Leu Tyr Glu Ile Ala Lys Phe Lys Arg  
 370 375 380  
 Leu Gly Cys Pro Ile Leu Ile Gly His Ser Arg Lys Ser Phe Leu Ser  
 385 390 395 400  
 Leu Phe Gly Asn His Asp Pro Lys Asp Arg Asp Trp Glu Thr Val Gly  
 405 410 415  
 Leu Ser Ile Leu Leu Gln Gln Gln Gly Val Asp Tyr Leu Arg Val His  
 420 425 430  
 Asn Val Ala Ala His Gln Lys Ala Leu Ser Val Ala Ala Cys Glu Ala  
 435 440 445  
 Cys Ala Pro Ile  
 450

&lt;210&gt;809

&lt;211&gt;186

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;809

Val Lys Pro Val His Pro Ser Asn Phe Glu Asn Pro Leu Gly Val Glu  
 1 5 10 15  
 Met Cys Lys Asn Arg Gly Val Arg Gly Ile Val Ala Cys Asp Pro Arg  
 20 25 30  
 Gly Val Ile Gly Leu Glu Gly Lys Leu Pro Trp His Tyr Pro Glu Asp  
 35 40 45  
 Leu Gln Phe Phe Ser Glu Thr Ile Gln Lys Phe Pro Ile Val Met Gly  
 50 55 60  
 Arg Lys Thr Trp Glu Thr Leu Pro Arg Lys Tyr Phe Val Asp Arg Ala  
 65 70 75 80  
 Val Val Val Phe Ser His Glu Lys Arg Gln Gly Val His Gly Glu Ile  
 85 90 95  
 Trp Val Thr Ser Leu Glu Glu Phe Leu Leu Asp Leu Ser Ser Pro  
 100 105 110  
 Thr Phe Leu Ile Gly Gly Gly Glu Leu Tyr Ser Leu Phe Leu Glu Asn  
 115 120 125  
 Gln Ile Val Arg Asp Phe Phe Ile Ser His Ile Lys Lys Glu Tyr Ala  
 130 135 140  
 Gly Asp Thr Phe Phe Pro Leu Ser Leu Leu Glu Thr Trp Thr Lys Thr  
 145 150 155 160  
 Val Leu Arg Asp Thr Gln Lys Ile Thr Thr Cys Tyr Tyr Glu Asn His

165 170 175  
 His Ser Gln Asn Thr Lys Asn Ile Ser Leu  
 180 185  
 <210>810  
 <211>264  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>810  
 Arg His Gly Pro Lys Leu Cys Leu Glu Ile Pro Lys Arg Ser Gln Arg  
 1 5 10 15  
 Val Thr Met Lys Ile Thr Thr Val Lys Thr Pro Lys Ile Tyr Pro Tyr  
 20 25 30  
 Asp Asp Leu Tyr Ser Ile Leu Glu Ser Ser Leu Pro Lys Leu Asn Glu  
 35 40 45  
 Arg Ser Ile Val Val Ile Thr Ser Lys Ile Val Ser Leu Cys Glu Gly  
 50 55 60  
 Ala Val Val Glu Leu Glu Lys Val Ser Lys Asp Glu Leu Ile Lys Gln  
 65 70 75 80  
 Glu Ala Asp Ala Tyr Val Phe Val Glu Lys Tyr Gly Ile Tyr Leu Thr  
 85 90 95  
 Lys Lys Trp Gly Ile Leu Ile Pro Ser Ala Gly Ile Asp Glu Ser Asn  
 100 105 110  
 Val Glu Gly Tyr Phe Val Leu Tyr Pro Arg Asp Val Leu Leu Ser Val  
 115 120 125  
 Asn Thr Leu Gly Asp Trp Leu Arg Asn Phe Tyr His Leu Glu His Cys  
 130 135 140  
 Gly Ile Ile Ile Ser Asp Ser His Thr Thr Pro Leu Arg Arg Gly Thr  
 145 150 155 160  
 Met Gly Leu Gly Leu Cys Trp Asn Gly Phe Phe Pro Leu Tyr Asn Tyr  
 165 170 175  
 Val Gly Lys Pro Asp Cys Phe Gly Arg Ala Leu Lys Met Thr Tyr Ser  
 180 185 190  
 Asn Leu Leu Asp Gly Leu Ser Ala Ala Val Leu Cys Met Gly Glu  
 195 200 205  
 Gly Asp Glu Gln Thr Pro Ile Ala Ile Ile Glu Glu Ala Pro Lys Ile  
 210 215 220  
 Thr Phe His Ser Ser Pro Thr Thr Leu Gln Asp Met Ser Thr Leu Ala  
 225 230 235 240  
 Ile Ala Glu Asp Glu Asp Leu Tyr Gly Pro Leu Leu Gln Ser Met Ala  
 245 250 255  
 Trp Glu Thr Pro Ala Pro Thr Ser  
 260

<210>811  
 <211>226  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>811  
 Gly Ile Met Thr Ser Trp Ile Glu Leu Leu Asp Lys Gln Ile Glu Asp  
 1 5 10 15  
 Gln His Met Leu Lys His Glu Phe Tyr Gln Arg Trp Ser Glu Gly Lys  
 20 25 30  
 Leu Glu Lys Gln Gln Leu Gln Ala Tyr Ala Lys Asp Tyr Tyr Leu His  
 35 40 45  
 Ile Lys Ala Phe Pro Cys Tyr Leu Ser Ala Leu His Ala Arg Cys Asp  
 50 55 60  
 Asp Leu Gln Ile Arg Arg Gln Ile Leu Glu Asn Leu Met Asp Glu Glu  
 65 70 75 80  
 Ala Gly Asn Pro Asn His Ile Asp Leu Trp Arg Gln Phe Ala Leu Ser  
 85 90 95  
 Leu Gly Val Ser Glu Glu Glu Leu Ala Asn His Glu Phe Ser Gln Ala  
 100 105 110  
 Ala Gln Asp Met Val Ala Thr Phe Arg Arg Leu Cys Asp Met Pro Gln  
 115 120 125  
 Leu Ala Val Gly Leu Gly Ala Leu Tyr Thr Tyr Glu Ile Gln Ile Pro

130 135 140  
 Gln Val Cys Val Glu Lys Ile Arg Gly Leu Lys Glu Tyr Phe Gly Val  
 145 150 155 160  
 Ser Ala Arg Gly Tyr Ala Tyr Phe Thr Val His Gln Glu Ala Asp Ile  
 165 170 175  
 Lys His Ala Ser Glu Glu Lys Glu Met Leu Gln Thr Leu Val Gly Arg  
 180 185 190  
 Glu Asn Pro Asp Ala Val Leu Gln Gly Ser Gln Glu Val Leu Asp Thr  
 195 200 205  
 Leu Trp Asn Phe Leu Ser Ser Phe Ile Asn Ser Thr Glu Pro Cys Ser  
 210 215 220  
 Cys Lys  
 225  
 <210>812  
 <211>361  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>812  
 Met Glu Thr Lys Arg Ser Ile Tyr Met Asn Leu Pro Asp Arg Lys Lys  
 1 5 10 15  
 Ala Leu Glu Ala Ala Val Ala Tyr Ile Glu Lys Gln Phe Gly Ala Gly  
 20 25 30  
 Ser Ile Met Ser Leu Gly Arg His Ser Ala Thr His Glu Ile Ser Thr  
 35 40 45  
 Ile Lys Thr Gly Ala Leu Ser Leu Asp Leu Ala Leu Gly Ile His Gly  
 50 55 60  
 Val Pro Lys Gly Arg Val Ile Glu Ile Phe Gly Pro Glu Ser Ser Gly  
 65 70 75 80  
 Lys Thr Thr Leu Ala Thr His Ile Val Ala Asn Ala Gln Lys Met Gly  
 85 90 95  
 Gly Val Ala Ala Tyr Ile Asp Ala Glu His Ala Leu Asp Pro Ser Tyr  
 100 105 110  
 Ala Ser Leu Ile Gly Val Asn Ile Asp Asp Leu Met Ile Ser Gln Pro  
 115 120 125  
 Asp Cys Gly Glu Asp Ala Leu Ser Ile Ala Glu Leu Leu Ala Arg Ser  
 130 135 140  
 Gly Ala Val Asp Val Ile Val Ile Asp Ser Val Ala Ala Leu Val Pro  
 145 150 155 160  
 Lys Ser Glu Leu Glu Gly Asp Ile Gly Asp Val His Val Gly Leu Gln  
 165 170 175  
 Ala Arg Met Met Ser Gln Ala Leu Arg Lys Leu Thr Ala Thr Leu Ser  
 180 185 190  
 Arg Ser Gln Thr Cys Ala Val Phe Ile Asn Gln Ile Arg Glu Lys Ile  
 195 200 205  
 Gly Val Ser Phe Gly Asn Pro Glu Thr Thr Thr Gly Gly Arg Ala Leu  
 210 215 220  
 Lys Phe Tyr Ser Ser Ile Arg Leu Asp Ile Arg Arg Ile Gly Ser Ile  
 225 230 235 240  
 Lys Gly Ser Asp Asn Ser Asp Ile Gly Asn Arg Ile Lys Val Lys Val  
 245 250 255  
 Ala Lys Asn Lys Leu Ala Pro Pro Phe Arg Ile Ala Glu Phe Asp Ile  
 260 265 270  
 Leu Phe Asn Glu Gly Ile Ser Ser Ala Gly Cys Ile Leu Asp Leu Ala  
 275 280 285  
 Val Glu Tyr Asn Ile Ile Glu Lys Lys Gly Ser Trp Phe Asn Tyr Gln  
 290 295 300  
 Glu Lys Lys Leu Gly Gln Gly Arg Glu Phe Val Arg Glu Glu Leu Lys  
 305 310 315 320  
 Arg Asn Arg Lys Leu Phe Glu Glu Ile Glu Lys Arg Ile Tyr Asp Val  
 325 330 335  
 Ile Ala Ala Asn Lys Thr Pro Ser Val His Ala Asn Glu Thr Pro Gln  
 340 345 350  
 Glu Val Pro Ala Gln Thr Val Glu Ala  
 355 360

&lt;210&gt;813

&lt;211&gt;180

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;813

Met Thr Asp Pro Lys Ile Glu Lys Ser Ala Leu Arg Lys Leu Phe Ile  
 1 5 10 15  
 Ser Ile Arg Arg Asp Leu Ser Glu Glu Arg Lys His Glu Ala Ser Ser  
 20 25 30  
 Ala Val Ala Ser Phe Val Arg Ser Phe Ser Lys Glu Ser Val Val Leu  
 35 40 45  
 Ser Phe Val Ser Phe Asn His Glu Ile Asp Met Gln Glu Ala Asn Arg  
 50 55 60  
 Ile Leu Ile Gln Lys Cys Thr Leu Ala Leu Pro Lys Ile Asp Gln Glu  
 65 70 75 80  
 Asn Leu Tyr Pro Val Leu Ile Pro Ser Ile Asp Asp Leu Ile Ser Val  
 85 90 95  
 Val His Pro Lys Asp Pro Phe Ser Lys Gln Thr Pro Ile Ser Ser Asp  
 100 105 110  
 Lys Ile Thr His Val Leu Val Pro Gly Leu Ala Phe Asp Gln Gln Gly  
 115 120 125  
 Tyr Arg Leu Gly Tyr Gly His Gly Phe Tyr Asp Arg Trp Leu Ala Gln  
 130 135 140  
 His Pro Tyr Pro Ser Ile Arg Thr Ile Gly Ile Gly Tyr Cys Glu Gln  
 145 150 155 160  
 Lys Ile Asp Arg Leu Pro Gln Glu Ser His Asp Ile Pro Leu Ser Gln  
 165 170 175  
 Ile Tyr Leu Cys  
 180

&lt;210&gt;814

&lt;211&gt;428

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;814

Met Asp Ile Lys Lys Leu Phe Cys Leu Phe Leu Cys Ser Ser Leu Ile  
 1 5 10 15  
 Ala Met Ser Pro Ile Tyr Gly Lys Thr Gly Asp Tyr Glu Lys Leu Thr  
 20 25 30  
 Leu Thr Gly Ile Asn Ile Ile Asp Arg Asn Gly Leu Ser Glu Thr Ile  
 35 40 45  
 Cys Ser Lys Glu Lys Leu Lys Lys Tyr Thr Lys Val Asp Phe Leu Ala  
 50 55 60  
 Pro Gln Pro Tyr Gln Lys Val Met Arg Met Tyr Lys Asn Lys Arg Gly  
 65 70 75 80  
 Asp Asn Val Ser Cys Leu Thr Ala Tyr His Thr Asn Gly Gln Ile Lys  
 85 90 95  
 Gln Tyr Leu Glu Cys Leu Asn Asn Arg Ala Tyr Gly Arg Tyr Arg Glu  
 100 105 110  
 Trp His Val Asn Gly Asn Ile Lys Ile Gln Ala Glu Val Ile Gly Gly  
 115 120 125  
 Ile Ala Asp Leu His Pro Ser Ala Glu Ser Gly Trp Leu Phe Asp Gln  
 130 135 140  
 Thr Thr Phe Ala Tyr Asn Asp Glu Gly Ile Leu Glu Ala Ala Ile Val  
 145 150 155 160  
 Tyr Glu Lys Gly Leu Leu Glu Gly Ser Ser Val Tyr Tyr His Thr Asn  
 165 170 175  
 Gly Asn Ile Trp Lys Glu Cys Pro Tyr His Lys Gly Val Pro Gln Gly  
 180 185 190  
 Lys Phe Leu Thr Tyr Thr Ser Ser Gly Lys Leu Leu Lys Glu Gln Asn  
 195 200 205  
 Tyr Gln Gln Gly Lys Arg His Gly Leu Ser Ile Arg Tyr Ser Glu Asp  
 210 215 220  
 Ser Glu Glu Asp Val Leu Ala Trp Glu Glu Tyr His Glu Gly Arg Leu  
 225 230 235 240



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Met | Asn | Phe | Lys | Leu | Pro | Val | Tyr | His | Ile | Gly | Leu | Thr | Lys | Ala |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Glu | Asn | Asn | Thr | Ile | Lys | Ile | Ala | Ile | Leu | Gln | Lys | Thr | Cys | Lys | Gly |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Trp | Ile | Val | Cys | His | Cys | Glu | Gln | Ile | Pro | Glu | Gly | Lys | Thr | Trp | Ser |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Leu | Pro | Lys | Lys | Tyr | Phe | Ala | Ala | Pro | Thr | Thr | Phe | Ser | Leu | Gln | Gly |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ser | Asp | Ile | Leu | Val | Lys | Ser | Ser | Ser | Ser | Ser | Leu | Lys | Asn | Arg | Lys |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |

896

85 90 95  
 Leu Ile Asp Leu Asn Cys Gly Cys Pro Thr Asp Lys Ile Thr Lys Asp  
 100 105 110  
 Gly Ser Gly Ser Gly Leu Phe Glu Asp Ala Arg Ala Tyr Trp Glu Asp  
 115 120 125  
 Phe Arg  
 130  
 <210>818  
 <211>235  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>818  
 Ile Val Asp Val Leu Gln Ile Lys Ser Pro Lys Met Ala Val Gly Gln  
 1 5 10 15  
 Val Phe Leu Lys Thr Pro Glu Leu Ile Gly Arg Ile Leu Asp Lys Ile  
 20 25 30  
 Ile Asn Ser Val Ser Ile Pro Val Thr Val Lys Ile Arg Ser Gly Trp  
 35 40 45  
 Asp Met Glu His Ile Asn Val Glu Asp Thr Val Arg Ile Ile Arg Asp  
 50 55 60  
 Ala Gly Ala Ser Ala Val Phe Val His Gly Arg Thr Arg Ala Gln Gly  
 65 70 75 80  
 Tyr His Gly Pro Ser Lys Gln Glu Tyr Ile Ser Arg Ala Lys Ala Ala  
 85 90 95  
 Ala Gly Lys Glu Phe Pro Val Phe Gly Asn Gly Asp Ile Phe Ser Pro  
 100 105 110  
 Glu Ala Ala Gln Ala Met Leu Thr Thr Gly Cys Asp Gly Val Leu Val  
 115 120 125  
 Ala Arg Gly Thr Leu Gly Ala Pro Trp Ile Gly Lys Gln Ile Gln Asp  
 130 135 140  
 Tyr Leu Thr Thr Gly Ser Tyr Glu Lys Ile Pro Phe Ile Lys Arg Lys  
 145 150 155 160  
 Ala Ala Phe Leu Glu His Met Arg Leu Val Glu Asp Tyr Tyr Gln Ser  
 165 170 175  
 Glu Thr Lys Phe Leu Ser Glu Thr Arg Lys Leu Cys Gly His Tyr Leu  
 180 185 190  
 Ile Ser Ala Ala Lys Val Arg Phe Leu Arg Ser Ser Leu Ala Lys Ala  
 195 200 205  
 Thr Ser Tyr Gln Glu Val Tyr Gln Leu Val Asn Asp Tyr Glu Glu Ala  
 210 215 220  
 Asp Asp Ser Ser Leu Glu Thr Phe Val Lys Cys  
 225 230 235  
 <210>819  
 <211>827  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>819  
 Met Lys Lys Ser Leu Ile Ile Val Glu Ser Pro Ala Lys Ile Lys Thr  
 1 5 10 15  
 Leu Gln Lys Leu Leu Gly Ser Glu Phe Val Phe Ala Ser Ser Ile Gly  
 20 25 30  
 His Ile Val Asp Leu Pro Ala Lys Glu Phe Gly Ile Asp Val Asp His  
 35 40 45  
 Asp Phe Glu Pro Gln Tyr Gln Val Leu Pro Asp Lys Gln Glu Val Ile  
 50 55 60  
 Asn His Ile Arg Lys Leu Ala Ala Lys Cys Glu Lys Val Tyr Leu Ser  
 65 70 75 80  
 Pro Asp Pro Asp Arg Glu Gly Glu Ala Ile Ala Trp His Ile Ala Asn  
 85 90 95  
 Gln Leu Pro Asp Ser Pro Leu Ile Gln Arg Val Ser Phe Asn Ala Ile  
 100 105 110  
 Thr Lys Asn Ala Val Thr Glu Ala Leu Lys His Pro Arg Thr Ile Asp  
 115 120 125  
 Met Ala Leu Val Asn Ala Gln Gln Ala Arg Arg Leu Leu Asp Arg Ile

|                         |                     |                     |
|-------------------------|---------------------|---------------------|
| 130                     | 135                 | 140                 |
| Val Gly Tyr Lys Ile Ser | Pro Ile Leu Ser Arg | Lys Leu Gln Gln Arg |
| 145                     | 150                 | 155                 |
| Ser Gly Ile Ser Ala Gly | Arg Val Gln Ser Val | Ala Leu Lys Leu Val |
| 165                     | 170                 | 175                 |
| Val Asp Arg Glu Lys Ala | Ile Asp Ala Phe Val | Pro Val Glu Tyr Trp |
| 180                     | 185                 | 190                 |
| Asn Leu Arg Val Leu Met | Gln Asp Pro Lys Thr | Thr Lys Thr Phe Trp |
| 195                     | 200                 | 205                 |
| Ala His Leu Tyr Ala Val | Gln Gly Lys Lys Trp | Glu Lys Glu Ile Pro |
| 210                     | 215                 | 220                 |
| Glu Gly Lys Thr Glu Asn | Asp Val Leu Leu Ile | Asn Ser Glu Glu Lys |
| 225                     | 230                 | 235                 |
| Ala Arg His Tyr Ala Glu | Leu Leu Glu Lys Ser | Ser Tyr Thr Ile Thr |
| 245                     | 250                 | 255                 |
| Arg Val Glu Ala Lys Ala | Lys Arg Arg Phe Ala | Pro Pro Pro Phe Ile |
| 260                     | 265                 | 270                 |
| Thr Ser Thr Leu Gln Gln | Glu Ala Ser Arg His | Phe Arg Phe Ser Ala |
| 275                     | 280                 | 285                 |
| Ser Arg Thr Met Ser Ile | Ala Gln Thr Leu Tyr | Glu Gly Val Asp Leu |
| 290                     | 295                 | 300                 |
| Asp Ser Glu Asp Ser Thr | Gly Leu Ile Thr Tyr | Met Arg Thr Asp Ser |
| 305                     | 310                 | 315                 |
| Val Arg Val Asp Pro Glu | Ala Leu Thr Thr Val | Arg Glu Tyr Ile Gln |
| 325                     | 330                 | 335                 |
| Gln Thr Phe Gly Lys Glu | Tyr Leu Pro Glu Lys | Ala Asn Val Tyr Thr |
| 340                     | 345                 | 350                 |
| Thr Lys Lys Met Thr Gln | Asp Ala His Glu Ala | Ile Arg Pro Thr Asp |
| 355                     | 360                 | 365                 |
| Ile Asn Leu Thr Pro Asp | Lys Leu Lys Asn Lys | Leu Ser Asp Asp Gln |
| 370                     | 375                 | 380                 |
| Phe Lys Val Tyr Asn Leu | Ile Trp Lys Arg Phe | Val Ala Ser Gln Ile |
| 385                     | 390                 | 395                 |
| Thr Pro Ala Ile Tyr Asp | Thr Leu Ala Val Gln | Ile Thr Thr Asp Thr |
| 405                     | 410                 | 415                 |
| Glu Ile Asp Leu Arg Ala | Ser Gly Ser Leu Lys | Phe Lys Gly Phe     |
| 420                     | 425                 | 430                 |
| Leu Ala Val Tyr Glu Glu | Lys Gln Asp Asp Glu | Asn Asp Gln Glu Glu |
| 435                     | 440                 | 445                 |
| Asp His Pro Leu Pro Pro | Leu His Ala Gln Asp | Ala Leu Ile Lys Glu |
| 450                     | 455                 | 460                 |
| Glu Val Ser Gln Glu Gln | Ala Phe Thr Lys Pro | Leu Pro Arg Phe Thr |
| 465                     | 470                 | 475                 |
| Glu Ala Ser Leu Val Lys | Glu Leu Glu Lys Ser | Gly Ile Gly Arg Pro |
| 485                     | 490                 | 495                 |
| Ser Thr Tyr Ala Thr Ile | Met Asn Lys Ile Gln | Ser Arg Glu Tyr Thr |
| 500                     | 505                 | 510                 |
| Thr Lys Glu Asn Gln Arg | Leu Arg Pro Thr Glu | Leu Gly Lys Ile Ile |
| 515                     | 520                 | 525                 |
| Ser Gln Phe Leu Glu Thr | Asn Phe Pro Arg Ile | Met Asp Ile Gly Phe |
| 530                     | 535                 | 540                 |
| Thr Ala Leu Met Glu Asp | Glu Leu Glu Leu Ile | Ala Asp Asn Lys Lys |
| 545                     | 550                 | 555                 |
| Pro Trp Lys Leu Leu Leu | Gln Glu Phe Trp Thr | Thr Phe Leu Pro Val |
| 565                     | 570                 | 575                 |
| Val Ile Thr Ala Glu Lys | Glu Ala Val Ile Pro | Arg Ile Leu Thr Asn |
| 580                     | 585                 | 590                 |
| Ile Glu Cys Ser Lys Cys | His Lys Gly Lys Leu | Val Lys Ile Trp Ser |
| 595                     | 600                 | 605                 |
| Lys Asn Ser Tyr Phe Tyr | Gly Cys Ser Glu Tyr | Pro Glu Cys Asp Tyr |
| 610                     | 615                 | 620                 |
| Arg Thr Ser Glu Glu Glu | Leu Ala Phe Asn Lys | Glu Asp Tyr Ala Glu |
| 625                     | 630                 | 635                 |
| Asp Thr Pro Trp Asp Ser | Pro Cys Pro Leu Cys | Gly Gly Val Met Lys |

645 650 655  
 Val Arg His Gly Arg Tyr Gly Thr Phe Leu Gly Cys Glu Lys Tyr Pro  
 660 665 670  
 Glu Cys Arg Gly Thr Ile Ser Ile His Lys Lys Gly Glu Glu Ile Glu  
 675 680 685  
 Gln Glu Glu Pro Ile Pro Cys Pro Ala Ile Gly Cys Asn Gly Lys Ile  
 690 695 700  
 Phe Lys Lys Arg Ser Arg Tyr Asn Lys Ile Phe Tyr Ser Cys Ser Glu  
 705 710 715 720  
 Tyr Pro Glu Cys Ser Val Ile Gly Asn Ser Ile Asp Ala Val Ile Thr  
 725 730 735  
 Lys Tyr Ser Gly Thr Glu Lys Ile Pro Tyr Lys Lys Lys Thr Pro Thr  
 740 745 750  
 Lys Lys Lys Ser Ser Ala Lys Thr Thr Lys Ala Ala Lys Thr Pro Ser  
 755 760 765  
 Lys Lys Gly Lys Ala Lys Ser Ser Val Lys Lys Ser Ser Glu Lys Lys  
 770 775 780  
 Thr Gly Pro Leu Phe Leu Pro Ser Pro Asp Leu Ala Lys Met Ile Gly  
 785 790 795 800  
 Asn Glu Xaa Arg Ile Ser Gly Arg Ser Asn Gln Lys Asn Leu Gly Leu  
 805 810 815  
 His Gln Gly Thr Ser Ile Thr Gly Thr Arg Lys  
 820 825  
 <210>820  
 <211>270  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>820  
 Lys Pro Arg Thr Arg Asn Val Glu Lys Leu Glu Phe Val Thr Ser Leu  
 1 5 10 15  
 Ser Ser Pro Asp Asp Asp Leu Ile Thr Phe Asn Lys Gln Gly Leu Ile  
 20 25 30  
 Ala Gly Pro Glu Glu Glu Lys Val Ala Phe Leu Val Arg Ser Asn Ala  
 35 40 45  
 Met Leu Asp Ala Gly Pro Glu Thr Pro Ala Ser Phe Pro Glu Ser Leu  
 50 55 60  
 Arg Glu Gln Phe Asp Ile Phe Pro Glu Tyr Val Glu Val Leu Tyr Ser  
 65 70 75 80  
 Asn Glu Gly Leu Asp Val Trp Glu Ala Gly Cys Thr Trp Ile Leu Asn  
 85 90 95  
 Asn Glu Val Thr Ile Gln Leu Arg Lys His His Arg Lys Ala Ser Arg  
 100 105 110  
 Trp Leu Gly Met Tyr Ser Arg Asp Glu Val Leu Ala His Glu Ala Val  
 115 120 125  
 His Ala Val Arg Met Lys Phe His Glu Pro Val Phe Glu Glu Val Leu  
 130 135 140  
 Ala Tyr Gln Thr Ser Arg Trp Gly Trp Arg Arg Phe Phe Gly Pro Leu  
 145 150 155 160  
 Phe Arg Ser Pro Gly Glu Ser Tyr Leu Leu Phe Phe Thr Ile Leu  
 165 170 175  
 Gly Leu Gly Ile Ser Leu Trp Tyr Pro Ala Gly Ile Leu Ile Met Leu  
 180 185 190  
 Val Leu Pro Met Tyr Phe Leu Met Arg Leu Cys Met Ala Gln Ser Tyr  
 195 200 205  
 Leu Tyr Arg Ala Met Lys Lys Ile Arg Lys Met Leu Gly Val Pro Pro  
 210 215 220  
 Leu Trp Val Leu Leu Arg Leu Thr Asp Lys Glu Ile Lys Met Phe Ala  
 225 230 235 240  
 Lys Glu Pro Ile Pro Val Leu Glu His Tyr Ala Arg Lys Arg Lys Leu  
 245 250 255  
 Glu Asn Val Arg Trp Lys Gln Ile Tyr Gln Ser Tyr Phe Val  
 260 265 270  
 <210>821  
 <211>456

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;821

Ile Phe Lys Gly Asn Ser Lys Arg Leu Tyr Asp Ser Ser Ala Leu Asp  
 1 5 10 15  
 Met Phe Gln Gln Lys Gln Lys Leu Ser Leu Lys Tyr Leu Pro Ser Leu  
 20 25 30  
 Arg Met Gln Gln Gly Leu Gln Met Leu Gln Ser Pro Leu Thr Glu Leu  
 35 40 45  
 Ser Ser Tyr Val Val Gln Glu Ile Ile Asp Asn Pro Phe Phe Asp Leu  
 50 55 60  
 Ser Ser Leu Glu Glu Glu Glu Trp Ser Pro Cys Tyr Arg Pro Thr Asn  
 65 70 75 80  
 Ser Thr Phe Ser Tyr Leu Asn Gln Thr Pro Gly Pro Gln Glu Ser Leu  
 85 90 95  
 Tyr Thr Arg Leu Leu Pro Gln Ile Glu Glu Ala Phe Ser Thr Ala Glu  
 100 105 110  
 Glu Arg Phe Ile Ala His Gln Ile Ala Gly Asn Leu Ser Asp Glu Gly  
 115 120 125  
 Leu Phe Leu Arg Asn Pro Glu Asp Phe Ala Gln Glu Leu Glu Leu Pro  
 130 135 140  
 Leu Glu Lys Ile His Lys Val Trp Asp Thr Ile Gln Asn Leu Ser Pro  
 145 150 155 160  
 Glu Gly Ile Ala Ser Pro Ser Leu Gln Ser Tyr Trp Met Lys Leu Leu  
 165 170 175  
 Arg Asn Ser Ser His Gln Gln Ala Tyr Ser Ile Val Arg Asp Cys Tyr  
 180 185 190  
 Pro Leu Met Thr Asn Cys Glu Phe Ala Pro Ile Met Lys Lys Phe Ser  
 195 200 205  
 Leu Ser Leu Ser Glu Leu Arg Asn Ile Leu Lys Lys Ala Leu Gly Ser  
 210 215 220  
 Ile Pro Trp Cys Pro Ala Ala Ala Cys Thr Val Lys Pro Met Val Ser  
 225 230 235 240  
 Thr Pro Leu Pro Asp Ile Tyr Leu Phe Tyr Ser Ser Gly Ser Trp Lys  
 245 250 255  
 Ile Glu Val Ser Thr Arg Gly Leu Pro Ser Ile Lys Leu Asn Lys Glu  
 260 265 270  
 Thr Phe His Phe Tyr Glu His Leu Pro Lys Glu Glu Gln Lys Asn Leu  
 275 280 285  
 Ser Gln Gln Ile Leu Ser Ala Lys Trp Leu Ile Lys Asn Leu Arg Lys  
 290 295 300  
 Arg Glu Gln Thr Leu Leu Gln Val Met Glu Thr Leu Leu Pro Lys Gln  
 305 310 315 320  
 Glu Asp Phe Leu Leu Gly Lys Ile Pro Ala Pro Tyr Pro Leu Gly Ile  
 325 330 335  
 Lys Asp Leu Ala Glu Asp Leu Ser Phe His Glu Ser Thr Ile Phe Arg  
 340 345 350  
 Ala Ile Glu Asn Lys Ala Val Ala Ala Pro Ile Gly Ile Phe Pro Leu  
 355 360 365  
 Lys His Leu Phe Pro Arg Gly Ile His Gln Asp Ser Ser His Ser Lys  
 370 375 380  
 Glu Asn Val Leu Gln Trp Ile Arg Gln Trp Ile Ala Thr Glu Gln Thr  
 385 390 395 400  
 Pro Leu Ser Asp Ser Val Ile Ser Asp Arg Ile Thr Ala Lys Gly Ile  
 405 410 415  
 Pro Cys Ala Arg Arg Thr Val Ala Lys Tyr Arg Ala Gln Leu Lys Ile  
 420 425 430  
 Leu Pro Ala Asn Lys Arg Lys Lys Leu Phe Tyr Ile Arg Ser Ser Asn  
 435 440 445  
 Ser His Phe Arg Asp Arg Gln Phe  
 450 455

&lt;210&gt;822

&lt;211&gt;644

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;822

Lys Leu Gly Leu Ile Met Thr Cys Ile Ser Glu Leu Asn Glu Ala Gln  
 1 5 10 15  
 Arg Lys Ala Val Thr Ala Pro Leu Asn Pro Val Leu Val Leu Ala Gly  
 20 25 30  
 Ala Gly Ala Gly Lys Thr Arg Val Val Thr Tyr Arg Ile Leu His Leu  
 35 40 45  
 Ile Asn Gln Gly Ile Ala Pro Arg Glu Ile Leu Ala Val Thr Phe Thr  
 50 55 60  
 Asn Lys Ala Ala Arg Glu Leu Lys Glu Arg Ile Val Asn Gln Cys Ala  
 65 70 75 80  
 Ser Thr Asn Glu Phe Asp Val Pro Met Val Cys Thr Phe His Ser Leu  
 85 90 95  
 Gly Val Phe Ile Leu Arg Arg Ser Ile Asn Leu Leu Asn Arg Glu Asn  
 100 105 110  
 Asn Phe Thr Ile Tyr Asp Gln Ser Asp Ala Glu Lys Leu Ile Lys His  
 115 120 125  
 Ala Leu Gln Gln His Asn Leu Lys Pro Asn Leu Ala Ser Lys Ile Gln  
 130 135 140  
 Ala His Val Ser Gln Ala Lys Asn Arg Leu Leu Phe Pro Glu Asp Leu  
 145 150 155 160  
 Asp Pro Asn Asp Tyr Ile Asp Pro Val Val Ser Ile Tyr Gln Glu Tyr  
 165 170 175  
 Gln Lys Lys Leu Ile Glu Ala Asn Ala Leu Asp Phe Asp Asp Leu Leu  
 180 185 190  
 Phe Leu Thr Val Arg Leu Leu Arg Glu Ser Pro Glu Ala Gln Glu Leu  
 195 200 205  
 Tyr Asn Gln Leu Trp Lys Ala Leu Leu Ile Asp Glu Tyr Gln Asp Thr  
 210 215 220  
 Asn His Ala Gln Tyr Thr Leu Met Gln Leu Leu Ser Lys Gln His Arg  
 225 230 235 240  
 Asn Val Phe Ala Val Gly Asp Pro Asp Gln Ser Ile Tyr Ser Trp Arg  
 245 250 255  
 Gly Ala Asn Ile His Asn Ile Leu Asn Phe Glu Asn Asp Tyr Pro Asn  
 260 265 270  
 Ala Lys Val Leu Cys Leu Glu Glu Asn Tyr Arg Ser Tyr Gly Asn Ile  
 275 280 285  
 Leu Asn Ala Ala Asn Ala Leu Ile Lys Asn Asn Ala Ser Arg Leu Glu  
 290 295 300  
 Lys Glu Leu Arg Ser Val Lys Gly Pro Gly Glu Lys Ile Arg Leu Phe  
 305 310 315 320  
 Leu Gly Ser Thr Asp Arg Glu Glu Ala Asp Phe Val Ala Ala Glu Ile  
 325 330 335  
 Leu Gln Leu His Arg Val Gly Asn Ile Lys Leu Arg Asp Ile Cys Ile  
 340 345 350  
 Phe Tyr Arg Thr Asn Ser Gln Ser Arg Thr Phe Glu Asp Ala Leu Leu  
 355 360 365  
 Arg Arg Arg Ile Pro Tyr Glu Ile Ile Gly Gly Leu Ser Phe Tyr Lys  
 370 375 380  
 Arg Lys Glu Ile Gln Asp Ile Leu Ala Phe Leu Arg Ile Phe Ile Ser  
 385 390 395 400  
 Lys Ser Asp Ile Val Ala Phe Asp Arg Thr Val Asn Leu Pro Lys Arg  
 405 410 415  
 Gly Ile Gly Ser Thr Thr Ile Phe Ala Leu Thr Gln Tyr Ala Ile Ala  
 420 425 430  
 Gln Gly Leu Pro Ile Leu Lys Ala Cys Gln Gln Ala Leu Asp Thr Lys  
 435 440 445  
 Asp Val Lys Leu Ser Lys Lys Gln Gln Glu Gly Leu Gln Glu Tyr Leu  
 450 455 460  
 Ala Leu Phe Pro Gln Ile Glu His Ala Tyr Asn Thr Leu Ser Leu Arg  
 465 470 475 480  
 Asp Phe Ile Glu Ser Val Val Arg Ile Thr Gly Tyr Leu Glu Ile Leu  
 485 490 495

Lys Glu Asp Ala Asp Thr Phe Lys Asp Arg Lys Ser Asn Leu Glu Glu  
                   500                                  505                  510  
 Leu Tyr His Lys Ala Leu Glu Ser Glu Gln Gln Asn Pro Lys Thr His  
                   515                                  520                  525  
 Leu Glu Leu Phe Leu Asp Asp Leu Ala Leu Lys Gly Ser Asp Asp Asp  
                   530                                  535                  540  
 Leu Asn Leu Thr Ala Asp Arg Val Asn Leu Met Thr Leu His Asn Gly  
                   545                                  550                  555                  560  
 Lys Gly Leu Glu Phe Arg Val Ser Phe Leu Val Gly Leu Glu Glu Gln  
                                   565                                  570                  575  
 Leu Leu Pro His Ala Asn Ser Leu Gly Gly Thr Tyr Glu Asn Ile Glu  
                                   580                                  585                  590  
 Glu Glu Arg Arg Leu Cys Tyr Val Gly Ile Thr Arg Ala Gln Asp Leu  
                                   595                                  600                  605  
 Leu Tyr Leu Thr Ala Ala Gln Val Arg Ser Leu Trp Gly Thr Val Arg  
                                   610                                  615                  620  
 Met Met Lys Pro Ser Arg Phe Leu Lys Glu Ile Pro Lys Asp Tyr Met  
                                   625                                  630                  635                  640  
 Ile Gln Val Arg

&lt;210&gt;823

&lt;211&gt;236

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;823

Met Gln Asn Ala Thr Ile Asp Gln Leu Pro Val Ser Trp Gln Glu Gln  
   1                                  5                                  10                  15  
 Leu Pro Leu Cys Trp Arg Glu Gln Leu Lys Glu Glu Trp Ser Lys Pro  
                                   20                                  25                  30  
 Tyr Met Gln Gln Leu Leu Ile Phe Leu Lys Gln Glu Tyr Lys Glu His  
                                   35                                  40                  45  
 Thr Val Tyr Pro Glu Glu Asn Cys Val Phe Ser Ala Leu Arg Ser Thr  
                                   50                                  55                  60  
 Pro Phe Asp Gln Val Arg Val Val Ile Leu Gly Gln Asp Pro Tyr Pro  
                                   65                                  70                  75                  80  
 Gly Lys Gly Gln Ala His Gly Leu Ser Phe Ser Val Pro Glu Gly Gln  
                                   85                                  90                  95  
 Arg Leu Pro Pro Ser Leu Ile Asn Ile Phe Arg Glu Leu Lys Thr Asp  
                                   100                                  105                  110  
 Leu Gly Ile Glu Asn His Lys Gly Cys Leu Gln Ser Trp Ala Asn Gln  
                                   115                                  120                  125  
 Gly Ile Leu Leu Leu Asn Thr Val Leu Thr Val Arg Ala Gly Glu Pro  
                                   130                                  135                  140  
 Phe Ser His Ala Gly Lys Gly Trp Glu Leu Phe Thr Asp Ala Ile Val  
                                   145                                  150                  155                  160  
 Thr Lys Leu Ile Gln Glu Arg Thr His Ile Ile Phe Val Leu Trp Gly  
                                   165                                  170                  175  
 Ala Ala Ala Arg Lys Lys Cys Glu Leu Leu Phe Asn Ser Lys His Gln  
                                   180                                  185                  190  
 His Ala Val Leu Ser Ser Pro His Pro Ser Pro Leu Ala Ala His Arg  
                                   195                                  200                  205  
 Gly Phe Phe Gly Cys Ser His Phe Ser Lys Ile Asn Tyr Leu Leu Asn  
                                   210                                  215                  220  
 Lys Leu Asn Lys Pro Met Ile Asn Trp Lys Leu Pro  
                                   225                                  230                  235

&lt;210&gt;824

&lt;211&gt;206

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;824

Met Lys Ile Val Ile Ala Ser Ser His Gly Tyr Lys Ile Arg Glu Thr  
   1                                  5                                  10                  15  
 Lys Thr Phe Leu Lys Arg Leu Gly Asp Phe Asp Ile Phe Ser Leu Ser  
                                   20                                  25                  30



Asp Phe Pro Asp Tyr Lys Leu Pro Gln Glu Gln Glu Asp Ser Ile Thr  
           35                  40                  45  
 Ala Asn Ala Leu Thr Lys Gly Ile His Ala Ala Asn His Leu Gly Cys  
           50                  55                  60  
 Trp Val Ile Ala Asp Asp Thr Met Leu Arg Val Pro Ala Leu Asn Gly  
           65                  70                  75                  80  
 Leu Pro Gly Pro Leu Ser Ala Asn Phe Ala Gly Val Gly Ala Tyr Asp  
                   85                  90                  95  
 Lys Asp His Arg Lys Lys Leu Leu Asp Leu Met Ser Ser Leu Glu Ser  
           100                  105                  110  
 Leu Val Asp Arg Ser Ala Tyr Phe Glu Cys Cys Val Val Leu Val Ser  
           115                  120                  125  
 Pro Asn Gln Glu Ile Phe Lys Thr Tyr Gly Ile Cys Glu Gly Tyr Ile  
           130                  135                  140  
 Ser His Gln Glu Lys Gly Ser Ser Gly Phe Gly Tyr Asp Pro Ile Phe  
           145                  150                  155                  160  
 Val Lys Tyr Asp Tyr Lys Gln Thr Phe Ala Glu Leu Ser Glu Asp Val  
                   165                  170                  175  
 Lys Asn Gln Val Ser His Arg Ala Lys Ala Leu Gln Lys Leu Ala Pro  
           180                  185                  190  
 His Leu Gln Ser Leu Phe Glu Lys His Leu Leu Thr Arg Asp  
           195                  200                  205

&lt;210&gt;825

&lt;211&gt;424

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;825

Leu Met Phe Phe Gln Phe Leu Ser Phe Thr Met Lys Lys Ile Phe Tyr  
           1                  5                  10                  15  
 Ser Phe Val Leu Leu Ser Cys Ile Phe Pro Tyr Val Gly Cys Ala Gln  
                   20                  25                  30  
 Val Phe Val Gly Leu Asp Arg Ile Phe Ser Glu Gly Glu Tyr Thr Arg  
           35                  40                  45  
 Cys Ile Gln Gly Lys Lys Ile Ala Leu Ile Ser His Ser Ala Ala Ile  
           50                  55                  60  
 Asn Ser Arg Gly Gln Asp Ala Leu Ser Val Phe Tyr Ser Arg Lys His  
           65                  70                  75                  80  
 Asp Cys Thr Val Glu Ile Leu Cys Thr Leu Glu His Gly Tyr Tyr Gly  
                   85                  90                  95  
 Ala Thr Pro Thr Glu Thr Val Gly Asn Gln Pro Ser Arg Tyr Pro Asn  
           100                  105                  110  
 Leu Arg Ser Val Ser Leu Tyr Gly Val Lys Glu Val Pro Lys Glu Val  
           115                  120                  125  
 Ala Glu His Cys Asp Val Phe Val Tyr Asp Val Gln Asp Ile Gly Val  
           130                  135                  140  
 Arg Ser Tyr Ser Phe Val Thr Val Leu Met Gln Ile Val Lys Ala Ser  
           145                  150                  155                  160  
 Glu Arg Tyr Gly Lys Gln Leu Ile Val Leu Asp Arg Pro Asn Pro Met  
                   165                  170                  175  
 Gly Gly Arg Ile Val Asp Gly Pro Leu Pro Asn Pro Thr Thr Ser Gly  
           180                  185                  190  
 Ser Leu Ala Ile Pro Tyr Cys Tyr Gly Met Thr Pro Gly Glu Leu Ala  
           195                  200                  205  
 Leu Phe Phe Lys Lys Thr Tyr Ala Pro Asn Ala Asn Val Val Val Ile  
           210                  215                  220  
 Pro Met Lys Gly Trp Asn Arg Ser Met Thr Phe Asp Glu Thr Gly Leu  
           225                  230                  235                  240  
 Ile Trp Met Pro Thr Ser Pro Gln Met Pro Asp Pro Gln Ser Pro Phe  
                   245                  250                  255  
 Phe Tyr Ala Ala Thr Gly Ile Leu Gly Ala Leu Ser Val Ala Ser Ile  
           260                  265                  270  
 Gly Val Gly Tyr Thr Leu Pro Phe Lys Val Leu Gly Ala Pro Trp Met  
           275                  280                  285  
 Asp Gly Glu Lys Val Ala Asp Glu Leu Asn Arg Met Lys Leu Pro Gly

290 295 300  
 Val Leu Phe Leu Pro Phe Phe Tyr Glu Pro Phe Phe Gly Lys Tyr Lys  
 305 310 315 320  
 Met Glu Met Cys Ser Gly Val Leu Leu Val Leu Gln Asp Pro Lys Ile  
 325 330 335  
 Phe Tyr Pro Val Glu Thr Gln Cys Thr Ile Trp Gly Val Leu Lys Ala  
 340 345 350  
 Leu Tyr Pro Lys Gln Val Glu Gln Thr Leu Lys Ser Ile Glu Arg Ile  
 355 360 365  
 Pro Ala Arg Arg Ser Ser Ile Cys Asn Leu Phe Gly Gly Asp Glu Phe  
 370 375 380  
 Leu Ser Ile Ser His Lys Glu Arg Tyr Ile Val Trp Pro Leu Arg Arg  
 385 390 395 400  
 Leu Cys Lys Glu Ser Arg Glu Ser Phe His Gln Leu Arg Ser Ser Cys  
 405 410 415  
 Leu Leu Ser Glu Tyr Ala Glu Ser  
 420

&lt;210&gt;826

&lt;211&gt;527

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;826

Arg Val Val Trp Val Phe Lys Ser Gln Phe Glu Gly Leu Ser Ala Leu  
 1 5 10 15  
 Lys Arg Gly Val His Ala Leu Thr Lys Ala Val Thr Pro Ala Phe Gly  
 20 25 30  
 Pro Arg Gly Tyr Asn Val Val Ile Lys Lys Gly Lys Ala Pro Ile Val  
 35 40 45  
 Leu Thr Lys Asn Gly Ile Arg Ile Ala Lys Glu Ile Ile Leu Gln Asp  
 50 55 60  
 Ala Phe Glu Ser Leu Gly Val Lys Leu Ala Lys Glu Ala Leu Leu Lys  
 65 70 75 80  
 Val Val Glu Gln Thr Gly Asp Gly Ser Thr Thr Ala Leu Val Val Ile  
 85 90 95  
 Asp Ala Leu Phe Thr Gln Gly Leu Lys Gly Ile Ala Ala Gly Leu Asp  
 100 105 110  
 Pro Gln Glu Ile Lys Ala Gly Ile Leu Leu Ser Val Glu Met Val Tyr  
 115 120 125  
 Gln Gln Leu Gln Arg Gln Ala Ile Glu Leu Gln Ser Pro Lys Asp Val  
 130 135 140  
 Leu His Val Ala Met Val Ala Ala Asn His Asp Val Thr Leu Gly Thr  
 145 150 155 160  
 Val Val Ala Thr Val Ile Ser Gln Ala Asp Leu Lys Gly Val Phe Ser  
 165 170 175  
 Ser Lys Asp Ser Gly Ile Ser Lys Thr Arg Gly Leu Gly Lys Arg Val  
 180 185 190  
 Lys Ser Gly Tyr Leu Ser Pro Tyr Phe Val Thr Arg Pro Glu Thr Xaa  
 195 200 205  
 Asp Val Val Trp Glu Glu Ala Leu Val Leu Ile Leu Ser His Ser Leu  
 210 215 220  
 Val Ser Leu Ser Glu Glu Leu Ile Arg Tyr Leu Glu Leu Ile Ser Glu  
 225 230 235 240  
 Gln Asn Thr His Pro Leu Val Ile Ile Ala Glu Asp Phe Asp Gln Asn  
 245 250 255  
 Val Leu Arg Thr Leu Ile Leu Asn Lys Leu Arg Asn Gly Leu Pro Val  
 260 265 270  
 Cys Ala Val Lys Ala Pro Gly Ser Arg Glu Leu Arg Gln Val Val Leu  
 275 280 285  
 Glu Asp Leu Ala Ile Leu Thr Gly Ala Thr Leu Ile Gly Gln Glu Ser  
 290 295 300  
 Glu Asn Cys Glu Ile Pro Val Ser Leu Asp Val Leu Gly Arg Val Lys  
 305 310 315 320  
 Gln Val Met Ile Thr Lys Glu Thr Phe Thr Phe Leu Glu Gly Gly Gly  
 325 330 335

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Phe | Asp | Leu | Ile | Phe | Gln | Met | Lys | Phe | Thr | Val | Ala | Leu | Phe | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Glu | Ala | Glu | Lys | Gly | Ser | Tyr | Asp | Thr | Ala | Tyr | Phe | Cys | Arg | Ser | Leu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Val | Asp | Leu | His | Asn | Tyr | Leu | Gly | Asp | Val | Ser | Ser | Pro | Gly | Ile | Thr |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |

Leu Ala Ile Lys Thr Leu Leu Ser Asp Tyr Asn Val Val Tyr Phe Arg  
 50 55 60  
 Val Arg Glu Glu Gly Tyr Cys Val Asp Ser Tyr Phe Phe Gly Leu His  
 65 70 75 80  
 Phe Leu Asn Thr Gln Thr Thr Leu Lys Asn Ile Ile Ala Ile Gly Leu  
 85 90 95  
 Pro Gly Val Gly Asn Gln His Ile Ile Glu Ala Ser Arg Ser Leu Cys  
 100 105 110  
 Gln Lys His Asn Ser Leu Leu Leu Phe Phe Asp His Asp Leu Tyr Asp  
 115 120 125  
 Leu Leu Thr Phe Asn Gln Pro Xaa  
 130 135

&lt;210&gt;829

&lt;211&gt;205

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;829

Met His Ala Lys Leu Ser Phe Phe Ile Leu Leu Ser Leu Leu Phe Ser  
 1 5 10 15  
 Gly Ile Asp Cys Ser Arg Leu His Ala Ala Gly Arg Ser Pro Ser Leu  
 20 25 30  
 Gln Gly Val Leu Ala Glu Ile Glu Asp Ile Ser Ala Lys Leu Ala Ser  
 35 40 45  
 His Glu Val Glu Ile Val Met Leu Ser Glu Arg Leu Asp Glu Gln Asp  
 50 55 60  
 Ser Lys Phe Gln Lys Trp Thr Ala Ala Lys Pro Glu Thr Leu Ala Gln  
 65 70 75 80  
 Lys Ile Arg Glu Leu Glu Ser Asp Gln Lys Ala Leu Ala Lys Thr Leu  
 85 90 95  
 Ala Val Leu Thr Thr Ser Val Lys Asp Leu Gln Thr Asn Leu Gln Ser  
 100 105 110  
 Lys Leu Gln Glu Ile Gln Lys Asp His Arg Ala Leu Ala Gln Asp Leu  
 115 120 125  
 Arg Leu Val Arg Arg Ser Leu Leu Ala Leu Val Asp Ser Ser Ser Pro  
 130 135 140  
 Gly Ala Tyr Ala Asp Phe Ser Asp Pro Val Pro Glu Asn Ile Tyr Ile  
 145 150 155 160  
 Val Arg Glu Gly Asp Ser Leu Ser Lys Ile Ala Lys Lys Tyr Lys Leu  
 165 170 175  
 Ser Val Thr Glu Leu Lys Lys Ile Asn Lys Leu Asp Ser Asp Ala Ile  
 180 185 190  
 Tyr Ala Gly Gln Arg Leu Cys Leu Gln Arg Asn Lys Gln  
 195 200 205

&lt;210&gt;830

&lt;211&gt;192

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;830

Met Asn Ile His Ser Leu Trp Lys Leu Cys Thr Leu Leu Ala Leu Leu  
 1 5 10 15  
 Ala Leu Pro Ala Cys Ser Leu Ser Pro Asn Tyr Gly Trp Glu Asp Ser  
 20 25 30  
 Cys Asn Thr Cys His His Thr Arg Arg Lys Lys Pro Ser Ser Phe Gly  
 35 40 45  
 Phe Val Pro Leu Tyr Thr Glu Glu Asp Phe Asn Pro Asn Phe Thr Phe  
 50 55 60  
 Gly Glu Tyr Asp Ser Lys Glu Glu Lys Gln Tyr Lys Ser Ser Gln Val  
 65 70 75 80  
 Ala Ala Phe Arg Asn Ile Thr Phe Ala Thr Asp Ser Tyr Thr Ile Lys  
 85 90 95  
 Gly Glu Glu Asn Leu Ala Ile Leu Thr Asn Leu Val His Tyr Met Lys  
 100 105 110  
 Lys Asn Pro Lys Ala Thr Leu Tyr Ile Glu Gly His Thr Asp Glu Arg  
 115 120 125

Gly Ala Ala Ser Tyr Asn Leu Ala Leu Gly Ala Arg Arg Ala Asn Ala  
 130 135 140  
 Ile Lys Glu His Leu Arg Lys Gln Gly Ile Ser Ala Asp Arg Leu Ser  
 145 150 155 160  
 Thr Ile Ser Tyr Gly Lys Glu His Pro Leu Asn Ser Gly His Asn Glu  
 165 170 175  
 Leu Ala Trp Gln Gln Asn Arg Arg Thr Glu Phe Lys Ile His Ala Arg  
 180 185 190  
 <210>831  
 <211>431  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>831  
 Met Leu Arg Gln Leu Cys Phe Gln Val Phe Phe Phe Cys Phe Ala Ser  
 1 5 10 15  
 Leu Val Tyr Ala Glu Glu Leu Glu Val Val Val Arg Ser Glu His Ile  
 20 25 30  
 Thr Leu Pro Ile Glu Val Ser Cys Gln Thr Asp Thr Lys Asp Pro Lys  
 35 40 45  
 Ile Gln Lys Tyr Leu Ser Ser Leu Thr Glu Ile Phe Cys Lys Asp Ile  
 50 55 60  
 Ala Leu Gly Asp Cys Leu Gln Pro Thr Ala Ala Ser Lys Glu Ser Ser  
 65 70 75 80  
 Ser Pro Leu Ala Ile Ser Leu Arg Leu His Val Pro Gln Leu Ser Val  
 85 90 95  
 Val Leu Leu Gln Ser Ser Lys Thr Pro Gln Thr Leu Cys Ser Phe Thr  
 100 105 110  
 Ile Ser Gln Asn Leu Ser Val Asp Arg Gln Lys Ile His His Ala Ala  
 115 120 125  
 Asp Thr Val His Tyr Ala Leu Thr Gly Ile Pro Gly Ile Ser Ala Gly  
 130 135 140  
 Lys Ile Val Phe Ala Leu Ser Ser Leu Gly Lys Asp Gln Lys Leu Lys  
 145 150 155 160  
 Gln Gly Glu Leu Trp Thr Thr Asp Tyr Asp Gly Lys Asn Leu Ala Pro  
 165 170 175  
 Leu Thr Thr Glu Cys Ser Leu Ser Ile Thr Pro Lys Trp Val Gly Val  
 180 185 190  
 Gly Ser Asn Phe Pro Tyr Leu Tyr Val Ser Tyr Lys Tyr Gly Val Pro  
 195 200 205  
 Lys Ile Phe Leu Gly Ser Leu Glu Asn Thr Glu Gly Lys Lys Val Leu  
 210 215 220  
 Pro Leu Lys Gly Asn Gln Leu Met Pro Thr Phe Ser Pro Arg Lys Lys  
 225 230 235 240  
 Leu Leu Ala Phe Val Ala Asp Thr Tyr Gly Asn Pro Asp Leu Phe Ile  
 245 250 255  
 Gln Pro Phe Ser Leu Thr Ser Gly Pro Met Gly Arg Pro Arg Arg Leu  
 260 265 270  
 Leu Asn Glu Asn Phe Gly Thr Gln Gly Asn Pro Ser Phe Asn Pro Glu  
 275 280 285  
 Gly Ser Gln Leu Val Phe Ile Ser Asn Lys Asp Gly Arg Pro Arg Leu  
 290 295 300  
 Tyr Ile Met Ser Leu Asp Pro Glu Pro Gln Ala Pro Arg Leu Leu Thr  
 305 310 315 320  
 Lys Lys Tyr Arg Asn Ser Ser Cys Pro Ala Trp Ser Pro Asp Gly Lys  
 325 330 335  
 Lys Ile Ala Phe Cys Ser Val Ile Lys Gly Val Arg Gln Ile Cys Ile  
 340 345 350  
 Tyr Asp Leu Ser Ser Gly Glu Asp Tyr Gln Leu Thr Thr Ser Pro Thr  
 355 360 365  
 Asn Lys Glu Ser Pro Ser Trp Ala Ile Asp Ser Arg His Leu Val Phe  
 370 375 380  
 Ser Ala Gly Asn Ala Glu Glu Ser Glu Leu Tyr Leu Ile Ser Leu Val  
 385 390 395 400  
 Thr Lys Lys Thr Asn Lys Ile Ala Ile Gly Val Gly Glu Lys Arg Phe

405 410 415  
 Pro Ser Trp Gly Ala Phe Pro Gln Gln Pro Ile Lys Arg Thr Leu  
 420 425 430  
 <210>832  
 <211>194  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>832  
 Asn Asp Thr Pro Leu Cys Thr Thr Gln Pro Gln Lys Gln Ala Lys Cys  
 1 5 10 15  
 Ser Pro Pro Gln Glu Asn Val Gln Lys Ala Leu Gln Lys Pro Ile Pro  
 20 25 30  
 Lys Val Ile Lys Thr Glu Pro Pro Lys Pro Ser Pro Ala Pro Thr Val  
 35 40 45  
 Ala Lys Lys Thr Thr Ala Thr Glu Lys Pro Pro Pro Ser Thr Thr Lys  
 50 55 60  
 Lys Asn Thr Gln Leu Ser Lys Thr Gln Leu Gln Thr Leu Ser Glu Val  
 65 70 75 80  
 Ala Gln Ala Leu Ser Leu His Val Asp Lys Ile Glu Lys Ser Glu Thr  
 85 90 95  
 Ser Leu Lys Asn Ile Ser Trp Pro Ser Thr Ala Gln Leu Thr Met His  
 100 105 110  
 Ser Glu Leu Lys Ala Thr Gln Glu Asp Glu Leu Cys Glu Leu Phe Arg  
 115 120 125  
 Thr His Ile Ala Leu Pro Ser Lys Gly Tyr Val Arg Ile Lys Leu Val  
 130 135 140  
 Leu Ser Pro Asn Gly Glu Ile Gln Glu Cys Ser Phe Leu Ser Glu Val  
 145 150 155 160  
 Ser Ala Ala Asp Lys Gln Leu Leu Thr Gln Arg Ile His Ala Leu Pro  
 165 170 175  
 Phe Gln Lys Phe Leu Glu Lys Tyr Lys Val Ser Lys Asn Ile Ile Phe  
 180 185 190  
 Ser Tyr

<210>833  
 <211>135  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>833  
 Met Lys Tyr Arg Phe Thr Glu Glu Ile Glu Glu Glu Pro Leu Val Asn  
 1 5 10 15  
 Leu Thr Pro Leu Ile Asp Ile Val Phe Val Ile Leu Met Ala Phe Ile  
 20 25 30  
 Val Ala Val Pro Leu Ile Lys Leu Asp Ser Ile Ala Leu Ala Pro Gly  
 35 40 45  
 Thr Gln Glu Gln Glu Val Leu Ser Ser Glu Asn Asp Ser Ile Ala Val  
 50 55 60  
 Ile Lys Val Phe Ala Asp His Ser Leu Thr Leu Asn Glu His Pro Ile  
 65 70 75 80  
 Thr Leu Gln Glu Leu Thr Val Arg Leu Thr Leu Leu His Lys Ala Tyr  
 85 90 95  
 Pro Glu Lys Thr Pro Leu Leu Leu Gln Asp Gly Glu Thr Ser Phe Arg  
 100 105 110  
 Thr Tyr Gln Asn Val Lys Asn Ala Ile Glu Ala Ala Gly Phe His Glu  
 115 120 125  
 Leu His Val Ala Leu Gln Asn  
 130 135  
 <210>834  
 <211>232  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>834  
 Met Val His Phe Ser His Asn Pro Ile Ile Gln Ala Tyr Thr Glu Ala  
 1 5 10 15

Asp Phe Phe Gly Lys Ser Ile Phe Phe Cys Leu Leu Ile Leu Ser Val  
                   20                  25                  30  
 Cys Thr Trp Thr Val Leu His Gln Lys Leu Ala Ile Gln Lys Asn Phe  
                   35                  40                  45  
 Leu Lys Ala Gly Lys Ser Leu Lys Asp Phe Leu Ile Lys Asn Arg His  
                   50                  55                  60  
 Ala Pro Leu Ser Leu Asp Ile His Pro Glu Leu Ser Pro Phe Ala Asp  
                   65                  70                  75                  80  
 Leu Tyr Phe Thr Ile Lys Arg Gly Thr Leu Glu Leu Leu Asp Lys Asn  
                   85                  90                  95  
 Arg Gln Ser Ala Pro Asp Arg Gly Pro Ile Leu Ser Ser Glu Asp Ile  
                   100                  105                  110  
 Gln Ser Leu Glu Thr Leu Leu Gly Ala Ile Met Pro Lys Tyr Lys Ala  
                   115                  120                  125  
 Leu Leu His Lys Asn Ser Phe Ile Pro Ala Thr Thr Ile Ser Leu Ala  
                   130                  135                  140  
 Pro Phe Leu Gly Leu Leu Gly Thr Val Trp Gly Ile Leu Val Ala Phe  
                   145                  150                  155                  160  
 Thr His Ile Ser Ser Gly Ser Ser Gly Asn Ser Ala Ile Met Glu Gly  
                   165                  170                  175  
 Leu Ala Thr Ala Leu Gly Thr Thr Ile Ile Gly Leu Phe Val Ala Ile  
                   180                  185                  190  
 Pro Ser Leu Ile Ala Phe Asn Tyr Leu Lys Ala His Ser Ser Glu Leu  
                   195                  200                  205  
 Ile Ser Glu Ile Glu Gln Thr Ala Tyr Leu Leu Leu Asn Ser Ile Glu  
                   210                  215                  220  
 Val Lys Tyr Arg Asn Thr Asn Leu  
                   225                  230

&lt;210&gt;835

&lt;211&gt;135

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;835

Leu Lys Ala Ile Ser Glu Gly Ile Ala Thr Lys Ser Pro Ile Ile Val  
                   1                  5                  10                  15  
 Val Pro Arg Ala Val Ala Ser Pro Ser Ile Met Ala Glu Phe Pro Leu  
                   20                  25                  30  
 Leu Pro Glu Leu Met Trp Val Lys Ala Thr Lys Ile Pro His Thr Val  
                   35                  40                  45  
 Pro Lys Ser Pro Arg Lys Gly Ala Lys Leu Ile Val Val Ala Gly Ile  
                   50                  55                  60  
 Lys Leu Phe Leu Cys Lys Arg Ala Leu Tyr Phe Gly Met Met Ala Pro  
                   65                  70                  75                  80  
 Arg Ser Val Ser Lys Asp Trp Ile Ser Ser Glu Glu Arg Met Gly Pro  
                   85                  90                  95  
 Arg Ser Gly Ala Asp Cys Arg Phe Leu Ser Lys Ser Ser Lys Val Pro  
                   100                  105                  110  
 Arg Phe Ile Val Lys Tyr Lys Ser Ala Lys Gly Leu Ser Ser Gly Trp  
                   115                  120                  125  
 Ile Ser Arg Asp Arg Gly Ala  
                   130                  135

&lt;210&gt;836

&lt;211&gt;676

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;836

Ile Ile Gln Val Gln Asn Ser Phe Leu Arg Val Ala Thr Ser Leu Asp  
                   1                  5                  10                  15  
 Tyr Arg His Ser Asp Trp Gly Ser Arg Phe Thr Ala Ser Lys Gly Ser  
                   20                  25                  30  
 His Ile Tyr Trp Lys Asn Pro Gly Glu Ile Gly Ser Pro Leu Lys Ile  
                   35                  40                  45  
 Ser Trp Gln Leu Pro Lys Gly Phe Val Val Glu Glu Glu His Trp Pro  
                   50                  55                  60

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Pro | Lys | Val | Phe | Glu | Glu | Glu | Gly | Thr | Thr | Phe | Phe | Gly | Tyr | Glu |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Asp | Ser | Ala | Leu | Ile | Val | Ala | Asp | Val | Arg | Ala | Pro | Glu | Gly | Tyr | Thr |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Pro | Gly | Gln | Glu | Val | Glu | Leu | Arg | Ala | Gln | Val | Glu | Trp | Leu | Ala | Cys |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Gly | Asp | Ser | Cys | Leu | Pro | Gly | Asn | Val | Asp | Leu | Lys | Leu | Thr | Leu | Pro |
|     | 115 |     |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Tyr | Glu | Glu | Lys | Glu | Pro | Ser | Leu | Tyr | Pro | Asp | Thr | His | Ala | Glu | Phe |
|     | 130 |     |     |     |     |     | 135 |     |     |     | 140 |     |     |     |     |
| Thr | Lys | Thr | Leu | His | Ala | Gln | Pro | Arg | Val | Leu | Glu | Asn | Asp | His | Ser |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Val | Gln | Val | Ala | Gln | Gly | Lys | Gly | Asn | Glu | Ile | Ile | Leu | Asn | Ile | Ser |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Lys | Lys | Ile | Asn | Ala | Thr | Lys | Ala | Trp | Phe | Val | Ser | Glu | Lys | Ala | Asp |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Lys | Leu | Phe | Ala | Tyr | Ala | Glu | Thr | Ser | Tyr | Ser | Gly | Gly | Thr | Gly | Thr |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Ala | Trp | Arg | Leu | Lys | Val | Lys | Asn | Leu | Ser | Gly | Val | Gln | Lys | Asn | Glu |
|     | 210 |     |     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |
| Lys | Leu | His | Gly | Ile | Leu | Leu | Ala | Asp | His | Thr | Gly | Arg | Pro | Val |     |
| 225 |     |     |     |     | 230 |     |     |     | 235 |     |     |     |     | 240 |     |
| Glu | Ser | Leu | Thr | Ile | His | Ser | Glu | Val | Leu | Gly | Gln | Thr | Gly | Ser | Ala |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Val | Ala | Gly | Leu | Ser | Gln | Tyr | Ile | Thr | Ile | Leu | Ile | Met | Ala | Phe | Leu |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Gly | Gly | Val | Leu | Leu | Asn | Ile | Met | Pro | Cys | Val | Leu | Pro | Leu | Val | Thr |
|     | 275 |     |     |     |     |     | 280 |     |     |     |     |     | 285 |     |     |
| Leu | Lys | Val | Tyr | Gly | Leu | Ile | Lys | Ser | Ala | Gly | Glu | His | Arg | Ser | Ser |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Val | Ile | Ala | Asn | Gly | Leu | Trp | Phe | Thr | Leu | Gly | Val | Val | Gly | Cys | Phe |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Trp | Gly | Leu | Ala | Gly | Val | Ala | Phe | Ile | Leu | Lys | Val | Leu | Gly | His | Asn |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Ile | Gly | Trp | Gly | Phe | Gln | Leu | Gln | Glu | Pro | Met | Phe | Val | Ala | Thr | Leu |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Ile | Ile | Val | Phe | Phe | Leu | Phe | Ala | Leu | Ser | Ser | Leu | Gly | Leu | Phe | Glu |
|     |     |     | 355 |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Met | Gly | Thr | Met | Phe | Ala | Asn | Leu | Gly | Gly | Lys | Leu | Gln | Ser | Ser | Glu |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Met | Lys | Ser | Ser | Asn | Asn | Lys | Ala | Val | Gly | Ala | Phe | Phe | Asn | Gly | Ile |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Leu | Ala | Thr | Leu | Val | Thr | Thr | Pro | Cys | Thr | Gly | Pro | Phe | Leu | Gly | Ser |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Val | Leu | Gly | Leu | Val | Met | Ser | Leu | Ser | Phe | Leu | Gln | Gln | Leu | Leu | Ile |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Phe | Thr | Ala | Ile | Gly | Leu | Gly | Met | Ala | Ser | Pro | Tyr | Leu | Val | Phe | Ser |
|     |     |     | 435 |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Val | Phe | Pro | Lys | Met | Leu | Ser | Val | Leu | Pro | Lys | Pro | Gly | Gly | Trp | Met |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Ser | Thr | Phe | Lys | Gln | Leu | Thr | Gly | Phe | Met | Leu | Val | Thr | Val | Thr |     |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     | 480 |     |
| Trp | Leu | Val | Trp | Ile | Phe | Gly | Ser | Glu | Thr | Ser | Thr | Thr | Ser | Val | Val |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |     |
| Val | Leu | Leu | Gly | Gly | Leu | Trp | Leu | Ala | Gly | Leu | Gly | Ala | Trp | Ile | Leu |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |
| Gly | Arg | Trp | Gly | Thr | Pro | Val | Ser | Pro | Lys | Lys | Gln | Arg | Val | Cys | Ala |
|     |     |     | 515 |     |     |     | 520 |     |     |     |     | 525 |     |     |     |
| Ser | Leu | Phe | Phe | Ala | Phe | Leu | Gly | Gly | Ala | Ile | Ser | Val | Ser | Gly |     |
|     | 530 |     |     |     |     | 535 |     |     |     | 540 |     |     |     |     |     |
| Leu | Ala | Ser | His | Tyr | Phe | Ala | Glu | Pro | Gln | Gln | Thr | Val | Ser | Val | Asn |
| 545 |     |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |
| Glu | Asp | Ser | Leu | Trp | Gln | Pro | Phe | Ser | Leu | Glu | Lys | Leu | Ala | Gln | Leu |
|     |     |     |     | 565 |     |     |     |     | 570 |     |     |     |     | 575 |     |



Arg Ala Gln Gly Arg Pro Val Phe Val Asn Phe Thr Ala Lys Trp Cys  
 580 585 590  
 Leu Thr Cys Gln Met Asn Lys Pro Val Leu Tyr Gly Asp Ala Val Gln  
 595 600 605  
 Lys Met Phe Glu Thr His Gly Ile Val Thr Leu Glu Ala Asp Trp Thr  
 610 615 620  
 Arg Lys Asp Pro Gly Ile Thr Glu Glu Leu Ala Arg Leu Gly Arg Ala  
 625 630 635 640  
 Ser Val Pro Ser Tyr Val Tyr Tyr Pro Gly Asp Asn Ser Ala Pro Val  
 645 650 655  
 Val Leu Pro Xaa Lys Ile Thr Gln Asn Leu Leu Glu Asp Val Val Ser  
 660 665 670  
 Arg Phe Val Arg  
 675

&lt;210&gt;837

&lt;211&gt;261

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;837

Val Asp Leu Ala Asp Ala His Val His Leu Ser Asp Asp Ala Phe Glu  
 1 5 10 15  
 Glu Asp Ile Asn Ser Val Leu Gln Arg Ala Gln Asp Ser Gly Val Ser  
 20 25 30  
 Leu Val Val Asn Val Thr Thr Thr Glu Lys Glu Leu Asn Arg Ser Phe  
 35 40 45  
 Ala Tyr Ala Glu Arg Phe Pro Lys Ile Arg Phe Cys His Val Gly Gly  
 50 55 60  
 Thr Pro Pro Gln Asp Val Asp Gln Asp Ile Glu Glu Asp Tyr Arg Asn  
 65 70 75 80  
 Phe His Ala Ala Ala His Ser Lys Lys Leu Ala Ala Ile Gly Glu Val  
 85 90 95  
 Gly Leu Asp Tyr Cys Phe Ala Thr Glu Glu Gly Ile Ala Arg Gln Lys  
 100 105 110  
 Glu Val Leu Gln Arg Tyr Leu Ala Leu Ser Leu Glu Cys Glu Leu Pro  
 115 120 125  
 Leu Val Val His Cys Arg Gly Ala Phe Asn Asp Phe Phe Arg Met Leu  
 130 135 140  
 Asp Gln Tyr Tyr His Asn Asp Pro Arg Ser Arg Pro Gly Met Leu His  
 145 150 155 160  
 Cys Phe Thr Gly Thr Leu Glu Glu Ala Gln Glu Leu Ile Ser Arg Gly  
 165 170 175  
 Trp Phe Ile Ser Ile Ser Gly Ile Val Thr Phe Lys Asn Ala Gln Asp  
 180 185 190  
 Leu Arg Asp Leu Val Val Glu Leu Pro Leu Glu His Leu Leu Ile Glu  
 195 200 205  
 Thr Asp Ala Pro Phe Leu Ala Pro Val Pro Tyr Arg Gly Lys Lys Asn  
 210 215 220  
 Glu Pro Ala His Val Leu His Thr Ile Asn Ala Val Ala Asn Val Lys  
 225 230 235 240  
 Gly Met Phe Pro Gln Glu Leu Ala Ala Leu Ala Tyr Lys Asn Val Leu  
 245 250 255  
 Arg Phe Leu His Gly  
 260

&lt;210&gt;838

&lt;211&gt;297

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;838

Met Ser Arg His Glu Ile Cys Pro Glu Val Ser His Lys Lys Gly Lys  
 1 5 10 15  
 Tyr Tyr Ser Thr Phe Ile Phe Arg Cys Ile His Ser Leu Ala Gly Ile  
 20 25 30  
 Ala Phe Thr Phe Phe Leu Cys Glu His Leu Phe Thr Asn Met Leu Ala  
 35 40 45

Ser Ser Tyr Phe Ser Gln Gly Lys Gly Phe Val Ala Met Val Asn Gly  
 50 55 60  
 Phe His Lys Ile Pro Gly Leu Lys Ile Ile Glu Val Ala Gly Leu Val  
 65 70 75 80  
 Leu Pro Phe Leu Cys His Ala Ile Ile Gly Ile Val Tyr Leu Phe Gln  
 85 90 95  
 Gly Lys Ser Asn Cys Tyr Ser Gly Asp Gly Ser Arg Pro His Leu Arg  
 100 105 110  
 Tyr Ala Lys Asn Tyr Ser Tyr Thr Trp Gln Arg Trp Thr Ala Trp Ile  
 115 120 125  
 Leu Leu Phe Gly Ile Ala Phe His Val Val His Leu Arg Phe Ile Arg  
 130 135 140  
 Tyr Pro Val His Val Asp Ile His Gly Thr Thr Tyr Tyr Ala Val Asp  
 145 150 155 160  
 Ile Gln Pro Ser Arg Tyr Asp Val Ile Val Arg Gly Thr Lys Gly Phe  
 165 170 175  
 Leu Thr Leu Asn Leu Pro Asn Thr Glu Ala Ser Ser Ile Glu Val Ser  
 180 185 190  
 Arg His Asp Leu Gly Gly Ala Asp Ala Ala Leu Leu Ser Glu Arg Asn  
 195 200 205  
 Ser Tyr Leu Leu Thr Pro Ser Ala Gly Thr Ala Phe Leu Tyr Val Val  
 210 215 220  
 Arg Asp Ala Leu Gly Ser Leu Phe Ile Ala Leu Leu Tyr Thr Ile Leu  
 225 230 235 240  
 Val Ile Ala Ala Ala Phe His Gly Phe Asn Gly Leu Trp Thr Phe Cys  
 245 250 255  
 Cys Arg Trp Gly Val Val Val Ser Leu Arg Met Gln Gly Val Leu Arg  
 260 265 270  
 Ile Val Cys Tyr Leu Ala Met Ile Val Val Thr Phe Met Gly Val Ser  
 275 280 285  
 Ala Val Trp Asn Leu Tyr Ser Val Ala  
 290 295

&lt;210&gt;839

&lt;211&gt;626

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;839

Met Asp Glu Asn Arg Lys Val Ile Val Val Gly Gly Gly Leu Ala Gly  
 1 5 10 15  
 Leu Ser Ala Ala Met Gln Leu Ala Asn Leu Gly Ile Ile Val Glu Leu  
 20 25 30  
 Val Ser Leu Thr Lys Val Lys Arg Ser His Ser Val Cys Ala Gln Gly  
 35 40 45  
 Gly Ile Asn Ala Ala Leu Asn Leu Lys Pro Glu Glu Asp Ser Pro  
 50 55 60  
 Tyr Val His Ala Tyr Asp Thr Ile Lys Gly Gly Asp Phe Leu Ala Asp  
 65 70 75 80  
 Gln Pro Pro Val Leu Glu Met Cys Leu Ala Ala Pro Arg Ile Ile Lys  
 85 90 95  
 Met Leu Asp Asn Phe Gly Cys Pro Phe Asn Arg Gly Pro Ser Gly Asn  
 100 105 110  
 Leu Asp Val Arg Arg Phe Gly Gly Thr Leu Tyr His Arg Thr Val Phe  
 115 120 125  
 Cys Gly Ala Ser Thr Gly Gln Gln Leu Met Tyr Thr Leu Asp Glu Gln  
 130 135 140  
 Val Arg Arg Arg Glu His Ala Gly Arg Val Ile Lys Arg Glu Asn His  
 145 150 155 160  
 Glu Phe Val Arg Leu Val Thr Asp His Ser Gly Arg Ala Cys Gly Ile  
 165 170 175  
 Ile Leu Met Asn Leu Phe Asn Asn Arg Leu Glu Ile Leu Arg Gly Asp  
 180 185 190  
 Ala Val Ile Ile Ala Thr Gly Gly Pro Gly Val Ile Phe Lys Met Ser  
 195 200 205  
 Thr Asn Ser Thr Phe Cys Thr Gly Ala Ala Asn Gly Arg Leu Phe Leu

210 215 220  
 Gln Gly Met Ala Tyr Ala Asn Pro Glu Phe Ile Gln Ile His Pro Thr  
 225 230 235 240  
 Ala Ile Pro Gly Arg Asp Lys Leu Arg Leu Ile Ser Glu Ser Val Arg  
 245 250 255  
 Gly Glu Gly Gly Arg Val Trp Val Pro Gly Asp Ser Ser Lys Arg Ile  
 260 265 270  
 Val Phe Pro Asp Gly Ser Glu Arg Pro Cys Gly Glu Thr Gly Ala Pro  
 275 280 285  
 Trp Tyr Phe Leu Glu Asp Met Tyr Pro Ala Tyr Gly Asn Leu Val Ser  
 290 295 300  
 Arg Asp Val Gly Ala Arg Ala Ile Leu Arg Val Cys Glu Ala Gly Leu  
 305 310 315 320  
 Gly Ile Asp Gly Arg Met Glu Ala Tyr Leu Asp Val Thr His Leu Pro  
 325 330 335  
 Glu Lys Thr Arg His Lys Leu Glu Val Val Leu Asp Ile Tyr Lys Lys  
 340 345 350  
 Phe Thr Gly Glu Asp Pro Asn Thr Val Pro Met Arg Ile Phe Pro Ala  
 355 360 365  
 Val His Tyr Ser Met Gly Gly Ala Trp Val Asp Trp Pro Ala Ala Asp  
 370 375 380  
 Asp Pro Asp Arg Asp Ser Arg Phe Arg Gln Met Thr Asn Ile Pro Gly  
 385 390 395 400  
 Cys Phe Asn Cys Gly Glu Ser Asp Phe Gln Tyr His Gly Ala Asn Arg  
 405 410 415  
 Leu Gly Ala Asn Ser Leu Leu Ser Cys Leu Phe Ala Gly Leu Val Ser  
 420 425 430  
 Gly Asp Glu Ala Ser Arg Phe Ile Glu Ala Phe Gly Ala Ser Gln Ala  
 435 440 445  
 Thr Ser Ser Asp Phe Asp Arg Ala Leu Gln Gln Glu Lys Glu Glu Asn  
 450 455 460  
 Ala Arg Leu Leu Ser Ala Ser Gly Lys Glu Asn Ile Phe Val Leu His  
 465 470 475 480  
 Glu Glu Ile Ala Lys Ile Met Val Arg Asn Val Thr Val Lys Arg Asn  
 485 490 495  
 Asn Arg Asp Leu Gln Glu Thr Met Asp Lys Leu Lys Glu Phe Arg Glu  
 500 505 510  
 Arg Leu Lys Asn Val Ser Val Leu Asp Ser Ser Pro Phe Ala Asn Lys  
 515 520 525  
 Ser Phe His Phe Val Arg Gln Met Gly Pro Met Leu Glu Leu Ala Leu  
 530 535 540  
 Ala Ile Thr Lys Gly Ala Leu Leu Arg Asn Glu Phe Arg Gly Ser His  
 545 550 555 560  
 Tyr Lys Pro Glu Phe Pro Glu Arg Asp Asp Glu His Trp Leu Lys Thr  
 565 570 575  
 Thr Val Ala Val Tyr Ala Pro Glu Glu Pro Glu Ile Ser Tyr Leu Pro  
 580 585 590  
 Val Asp Thr Arg His Val Ala Pro Thr Leu Arg Asp Tyr Thr Lys Ser  
 595 600 605  
 Ser Thr Gly Lys Ile Glu Leu Thr Asn Ile Pro Asp Asn Ile Arg Leu  
 610 615 620  
 Pro Ile  
 625  
 <210>840  
 <211>270  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>840  
 Leu Ile Ile Ser Val Tyr Pro Tyr Arg Lys Arg Glu Met Met Glu Asn  
 1 5 10 15  
 Leu Glu Thr Phe Ile Leu Lys Ile Tyr Arg Gly Val Pro Gly Lys Gln  
 20 25 30  
 Tyr Trp Glu Ser Phe Glu Leu Pro Leu His Pro Gly Glu Asn Val Ile  
 35 40 45

Ser Ala Leu Met Glu Ile Glu Lys Arg Pro Val Asn Ile Leu Gly Glu  
 50 55 60  
 Lys Val Asn Pro Val Val Trp Glu Gln Gly Cys Leu Glu Glu Val Cys  
 65 70 75 80  
 Gly Ser Cys Ser Ile Leu Val Asn Gly Val Pro Arg Gln Ala Cys Thr  
 85 90 95  
 Ala Leu Ile Gln Glu Tyr Ile Asp Ala Thr Gln Ser Arg Glu Ile Val  
 100 105 110  
 Leu Ala Pro Leu Thr Lys Phe Pro Leu Ile Arg Asp Leu Ile Val Asp  
 115 120 125  
 Arg Ser Ile Met Phe Asp Asn Leu Glu Arg Ile Gln Gly Trp Val Ala  
 130 135 140  
 Ala Asp Ile Glu Gly Glu Thr Phe Gly Pro Gln Val Thr Gln Glu Gln  
 145 150 155 160  
 Gln Glu Leu Leu Tyr Ala Leu Ser Gln Cys Met Thr Cys Gly Cys Cys  
 165 170 175  
 Thr Glu Ala Cys Pro Gln Ile Asp Asn Lys Ser Asp Phe Ile Gly Pro  
 180 185 190  
 Ala Ala Ile Ser Gln Ala Arg Tyr Phe Asn Thr Tyr Pro Gly Asp Lys  
 195 200 205  
 Gln Ser Lys Lys Arg Trp Arg Ala Leu Met Gly Lys Gly Gly Ile Glu  
 210 215 220  
 Gly Cys Gly Gln Ala His Asn Cys Val Arg Val Cys Pro Lys Lys Leu  
 225 230 235 240  
 Pro Leu Thr Glu Ser Ile Ser Ala Val Gly Arg Glu Ile Ser Lys Phe  
 245 250 255  
 Ser Leu Arg Ser Leu Phe Ser Ala Leu Phe Lys Lys Lys Lys  
 260 265 270

&lt;210&gt;841

&lt;211&gt;998

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;841

Thr Cys Leu Arg Ser Ser Arg Lys Ile Val Val Glu Asp Ile Ser Asp  
 1 5 10 15  
 Arg Asn Met Tyr Ser Cys Tyr Ser Lys Gly Ile Ser His Asn Tyr Leu  
 20 25 30  
 Leu His Pro Met Ser Arg Leu Asp Ile Phe Val Phe Asp Ser Leu Ile  
 35 40 45  
 Ala Asn Gln Asp Gln Asn Leu Leu Glu Glu Ile Phe Cys Ser Glu Asp  
 50 55 60  
 Thr Val Leu Phe Lys Ala Tyr Arg Thr Thr Ala Leu Gln Ser Pro Leu  
 65 70 75 80  
 Ala Ala Lys Asn Leu Asn Ile Ala Arg Lys Val Ala Asn Tyr Ile Leu  
 85 90 95  
 Ala Asp Asn Gly Glu Ile Asp Thr Val Lys Leu Val Glu Ala Ile His  
 100 105 110  
 His Leu Ser Gln Cys Thr Tyr Pro Leu Gly Pro His Arg His Asn Glu  
 115 120 125  
 Ala Gln Asp Arg Glu His Leu Leu Lys Met Leu Lys Ala Leu Lys Glu  
 130 135 140  
 Asn Pro Lys Leu Lys Glu Ser Ile Lys Thr Leu Phe Val Pro Ser Tyr  
 145 150 155 160  
 Ser Thr Ile Gln Asn Leu Ile Arg His Thr Leu Ala Leu Asn Pro Gln  
 165 170 175  
 Thr Ile Leu Ser Thr Ile His Val Arg Gln Ala Ala Leu Thr Ala Leu  
 180 185 190  
 Phe Thr Tyr Leu Arg Gln Asp Val Gly Ser Cys Phe Ala Thr Ala Pro  
 195 200 205  
 Ala Ile Leu Ile His Gln Glu Tyr Pro Glu Arg Phe Leu Lys Asp Leu  
 210 215 220  
 Asn Asp Leu Ile Ser Ser Gly Lys Leu Ser Arg Ile Val Asn Gln Arg  
 225 230 235 240  
 Glu Ile Ala Val Pro Ile Asn Leu Ser Gly Cys Ile Gly Glu Leu Phe

915

755 760 765  
 Glu Asn Phe Cys Asn Lys Tyr Ala Leu Gln His Val Val His Asp Phe  
 770 775 780  
 His Asp Phe Cys Ser Asp His Ser Leu Thr Leu Pro Glu Leu Tyr Asp  
 785 790 795 800  
 Lys Gly Ser Arg Phe Leu Ser Ser Leu Phe Thr Lys Asp Lys Thr Val  
 805 810 815  
 Ala Leu Ile Tyr Ile Arg Arg Leu Leu Tyr Leu Met Val Arg Glu Val  
 820 825 830  
 Pro Tyr Val Ser Glu Gln Gln Leu Pro Glu Val Leu Asp Asn Val Ser  
 835 840 845  
 Ser Tyr Leu Gly Ile Ser Ser Arg Ile Thr Tyr Glu Lys Phe Arg Ser  
 850 855 860  
 Leu Ile Glu Glu Thr Ile Pro Lys Met Thr Leu Leu Ser Ser Ala Asp  
 865 870 875 880  
 Leu Arg His Ile Tyr Lys Gly Leu Leu Met Gln Ser Tyr Gln Lys Ile  
 885 890 895  
 Tyr Thr Glu Glu Asp Thr Tyr Leu Arg Leu Thr Thr Ala Met Arg His  
 900 905 910  
 His Asn Leu Ala Tyr Pro Ala Pro Leu Leu Phe Ala Asp Ser Asn Trp  
 915 920 925  
 Pro Ser Ile Tyr Phe Gly Phe Ile Leu Asn Pro Gly Thr Thr Glu Ile  
 930 935 940  
 Asp Leu Trp Lys Phe Asn Tyr Ala Gly Leu Gln Gly Gln Pro Leu Asp  
 945 950 955 960  
 Asn Ile Gln Glu Leu Phe Ala Thr Ser Arg Pro Trp Thr Leu Tyr Ala  
 965 970 975  
 Asn Pro Ile Asp Tyr Gly Met Pro Pro Pro Gly Tyr Arg Ser Arg  
 980 985 990  
 Leu Pro Lys Glu Phe Phe  
 995  
 <210>842  
 <211>616  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>842  
 Arg His His Leu Ile Asn Ile Lys Gly Ile Ser Ile Met Lys His Thr  
 1 5 10 15  
 Phe Thr Lys Arg Val Leu Phe Phe Phe Phe Leu Val Ile Pro Ile Pro  
 20 25 30  
 Leu Leu Leu Asn Leu Met Val Val Gly Phe Phe Ser Phe Ser Ala Ala  
 35 40 45  
 Lys Ala Asn Leu Val Gln Val Leu His Thr Arg Ala Thr Asn Leu Ser  
 50 55 60  
 Ile Glu Phe Glu Lys Lys Leu Thr Ile His Lys Leu Phe Leu Asp Arg  
 65 70 75 80  
 Leu Ala Asn Thr Leu Ala Leu Lys Ser Tyr Ala Ser Pro Ser Ala Glu  
 85 90 95  
 Pro Tyr Ala Gln Ala Tyr Asn Glu Met Met Ala Leu Ser Asn Thr Asp  
 100 105 110  
 Phe Ser Leu Cys Leu Ile Asp Pro Phe Asp Gly Ser Val Arg Thr Lys  
 115 120 125  
 Asn Pro Gly Asp Pro Phe Ile Arg Tyr Leu Lys Gln His Pro Glu Met  
 130 135 140  
 Lys Lys Lys Leu Ser Ala Ala Val Gly Lys Ala Phe Leu Leu Thr Ile  
 145 150 155 160  
 Pro Gly Lys Pro Leu Leu His Tyr Leu Ile Leu Val Glu Asp Val Ala  
 165 170 175  
 Ser Trp Asp Ser Thr Thr Thr Ser Gly Leu Leu Val Ser Phe Tyr Pro  
 180 185 190  
 Met Ser Phe Leu Gln Lys Asp Leu Phe Gln Ser Leu His Ile Thr Lys  
 195 200 205  
 Gly Asn Ile Cys Leu Val Asn Lys Tyr Gly Glu Val Leu Phe Cys Ala  
 210 215 220

Gln Asp Ser Glu Ser Ser Phe Val Phe Ser Leu Asp Leu Pro Asn Leu  
 225 230 235 240  
 Pro Gln Phe Gln Ala Arg Ser Pro Ser Ala Ile Glu Ile Glu Lys Ala  
 245 250 255  
 Ser Gly Ile Leu Gly Gly Glu Asn Leu Ile Thr Val Ser Ile Asn Lys  
 260 265 270  
 Lys Arg Tyr Leu Gly Leu Val Leu Asn Lys Ile Pro Ile Gln Gly Thr  
 275 280 285  
 Tyr Thr Leu Ser Leu Val Pro Val Ser Asp Leu Ile Gln Ser Ala Leu  
 290 295 300  
 Lys Val Pro Leu Asn Ile Cys Phe Phe Tyr Val Leu Ala Phe Leu Leu  
 305 310 315 320  
 Met Trp Trp Ile Phe Ser Lys Ile Asn Thr Lys Leu Asn Lys Pro Leu  
 325 330 335  
 Gln Glu Leu Thr Phe Cys Met Glu Ala Ala Trp Arg Gly Asn His Asn  
 340 345 350  
 Val Arg Phe Glu Pro Gln Pro Tyr Gly Tyr Glu Phe Asn Glu Leu Gly  
 355 360 365  
 Asn Ile Phe Asn Cys Thr Leu Leu Leu Leu Asn Ser Ile Glu Lys  
 370 375 380  
 Ala Asp Ile Asp Tyr His Ser Gly Glu Lys Leu Gln Lys Glu Leu Gly  
 385 390 395 400  
 Ile Leu Ser Ser Leu Gln Ser Ala Leu Leu Ser Pro Asp Phe Pro Thr  
 405 410 415  
 Phe Pro Lys Val Thr Phe Ser Ser Gln His Leu Arg Arg Arg Gln Leu  
 420 425 430  
 Ser Gly His Phe Asn Gly Trp Thr Val Gln Asp Gly Gly Asp Thr Leu  
 435 440 445  
 Leu Gly Ile Ile Gly Leu Ala Gly Asp Ile Gly Leu Pro Ser Tyr Leu  
 450 455 460  
 Tyr Ala Leu Ser Ala Arg Ser Leu Phe Leu Ala Tyr Ala Ser Ser Asp  
 465 470 475 480  
 Val Ser Leu Gln Lys Ile Ser Lys Asp Thr Ala Asp Ser Phe Ser Lys  
 485 490 495  
 Thr Thr Glu Gly Asn Glu Ala Val Val Ala Met Thr Phe Ile Lys Tyr  
 500 505 510  
 Val Glu Lys Asp Arg Ser Leu Glu Leu Leu Ser Leu Ser Glu Gly Ala  
 515 520 525  
 Pro Thr Met Phe Leu Gln Arg Gly Glu Ser Phe Val Arg Leu Pro Leu  
 530 535 540  
 Glu Thr His Gln Ala Leu Gln Pro Gly Asp Arg Leu Ile Cys Leu Thr  
 545 550 555 560  
 Gly Gly Glu Asp Ile Leu Lys Tyr Phe Ser Gln Leu Pro Ile Glu Glu  
 565 570 575  
 Leu Leu Lys Asp Pro Leu Asn Pro Leu Asn Thr Glu Asn Leu Ile Asp  
 580 585 590  
 Ser Leu Thr Met Met Leu Asn Asn Glu Thr Glu His Ser Ala Asp Gly  
 595 600 605  
 Thr Leu Thr Ile Leu Ser Phe Ser  
 610 615  
 <210>843  
 <211>629  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>843  
 Asn Asn Arg Val Pro Phe Val Val Cys Cys Ala Val Ala Ile Ile Ala  
 1 5 10 15  
 Pro Leu Gly Ile Asn Ile Val Trp Leu Asn Leu Asp Gln Tyr Arg Thr  
 20 25 30  
 Ile Val Ser Ala Ile Ser Thr Ala Leu Lys Glu Asn Ala Ala Phe Lys  
 35 40 45  
 Ala Asn Thr Leu Thr Gln Ile Val Pro Leu Asn Val Asp Val Leu Ser  
 50 55 60  
 Leu Phe Ser Asp Val Leu Asp Leu Asp Ala Gly Ile Pro Glu Thr Pro

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Asn | Val | Leu | Leu | Ser | Asn | Glu | Met | Gln | Lys | Val | Phe | Gln | Gly | Ile | Tyr |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Asn | Glu | Ile | Ser | Leu | Ile | Lys | Val | Phe | Pro | Asn | Gly | Asp | Lys | Ile | Val |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Val | Ala | Ser | Ser | Ile | Pro | Glu | His | Leu | Gly | Glu | Asn | Tyr | Asn | His | Lys |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ile | Asp | Ile | Pro | Lys | Asn | Thr | Pro | Phe | Leu | Ala | Ala | Leu | Lys | Gln | Ser |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Pro | Lys | Asn | Gln | Glu | Val | Phe | Ser | Val | Met | Gln | Ala | Asn | Val | Phe | Asp |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Ala | Lys | Thr | Gln | Glu | Leu | Gln | Gly | Ile | Leu | Tyr | Thr | Thr | Phe | Ser | Ala |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Glu | Ser | Leu | Leu | Lys | Asp | Leu | Leu | Ile | Asn | Lys | Gln | Ser | Tyr | Leu | Thr |
|     |     | 180 |     |     |     |     | 185 |     |     |     |     |     | 190 |     |     |
| Val | Lys | Thr | Ala | Ile | Leu | Ser | Lys | Tyr | Gly | Val | Ile | Leu | Lys | Ala | Ser |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Asp | Pro | Ala | Leu | His | Leu | His | Thr | Val | Tyr | Pro | Asp | Met | Thr | Lys | Glu |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Lys | Phe | Cys | Gln | Val | Phe | Leu | Asn | Asp | Asp | Pro | Cys | Pro | Ile | Asp | Ser |
| 225 |     |     |     |     |     | 230 |     |     |     | 235 |     |     |     |     | 240 |
| Glu | Leu | Gly | Pro | Leu | Thr | Leu | Ser | Pro | Leu | Asp | Ile | Gly | Glu | Asn | Phe |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     |     | 255 |     |
| Tyr | Ser | Phe | Lys | Ile | Lys | Asp | Thr | Glu | Ile | Trp | Gly | Cys | Ile | Glu | Asn |
|     |     | 260 |     |     |     |     | 265 |     |     |     |     |     | 270 |     |     |
| Val | Pro | Ser | Ile | Asp | Ile | Ala | Val | Leu | Ser | Tyr | Ala | Lys | Lys | Glu | Glu |
|     | 275 |     |     |     |     | 280 |     |     |     |     |     | 285 |     |     |     |
| Ser | Phe | Ala | Pro | Leu | Trp | Arg | Arg | Ala | Arg | Met | Tyr | Thr | Ala | Tyr | Phe |
|     | 290 |     |     |     |     | 295 |     |     |     | 300 |     |     |     |     |     |
| Phe | Cys | Ile | Leu | Leu | Gly | Ser | Leu | Ile | Ala | Phe | Ile | Val | Ala | Arg | Arg |
| 305 |     |     |     |     | 310 |     |     |     | 315 |     |     |     |     |     | 320 |
| Leu | Ser | Leu | Pro | Ile | Arg | Lys | Leu | Ala | Thr | Ala | Met | Ile | Glu | Ser | Arg |
|     |     |     | 325 |     |     |     |     | 330 |     |     |     |     |     | 335 |     |
| Lys | Asn | Lys | Asn | Cys | Leu | Tyr | Thr | Asp | Asp | Ser | Leu | Gly | Phe | Glu | Ile |
|     |     | 340 |     |     |     |     | 345 |     |     |     |     |     | 350 |     |     |
| Asn | Arg | Leu | Gly | His | Ile | Phe | Asn | Ala | Met | Val | Glu | Asn | Leu | His | Lys |
|     | 355 |     |     |     |     | 360 |     |     |     |     |     | 365 |     |     |     |
| Gln | Gln | His | Leu | Ala | Lys | Thr | Asn | Phe | Glu | Met | Lys | Glu | Asn | Ala | Gln |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Asn | Ala | Leu | His | Leu | Gly | Glu | Gln | Ala | Gln | Gln | Arg | Leu | Leu | Pro | Asn |
| 385 |     |     |     |     | 390 |     |     |     | 395 |     |     |     |     |     | 400 |
| Thr | Leu | Pro | Ser | Tyr | Pro | His | Ile | Glu | Leu | Ala | Lys | Ala | Tyr | Ile | Pro |
|     |     |     | 405 |     |     |     |     | 410 |     |     |     |     |     | 415 |     |
| Ala | Ile | Thr | Val | Gly | Gly | Asp | Phe | Phe | Asp | Val | Phe | Val | Val | Gly | Glu |
|     |     | 420 |     |     |     |     | 425 |     |     |     |     |     | 430 |     |     |
| Gly | Ser | Lys | Ala | Arg | Leu | Phe | Leu | Ile | Val | Ala | Asp | Ala | Ser | Gly | Lys |
|     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |     |
| Gly | Val | Asn | Ala | Cys | Gly | Tyr | Ser | Leu | Phe | Leu | Lys | Asn | Met | Leu | Arg |
|     | 450 |     |     |     |     | 455 |     |     |     | 460 |     |     |     |     |     |
| Thr | Phe | Leu | Ser | Arg | Ser | Ser | Ser | Leu | Gln | Gln | Ala | Ile | Gln | Glu | Thr |
| 465 |     |     |     |     | 470 |     |     |     | 475 |     |     |     |     |     | 480 |
| Ser | Arg | Leu | Phe | Tyr | Asn | Asn | Thr | Lys | Asn | Ser | Gly | Met | Phe | Val | Thr |
|     |     |     | 485 |     |     |     |     | 490 |     |     |     |     |     | 495 |     |
| Leu | Cys | Val | Tyr | Cys | Tyr | His | Gln | Thr | Ser | Asn | Thr | Met | Glu | Tyr | Tyr |
|     |     | 500 |     |     |     |     | 505 |     |     |     |     |     | 510 |     |     |
| Ser | Cys | Gly | His | Pro | Pro | Ala | Cys | Tyr | Leu | Asp | Pro | Asp | Gly | Glu | Thr |
|     | 515 |     |     |     |     | 520 |     |     |     |     |     | 525 |     |     |     |
| Ser | Trp | Leu | Phe | His | Pro | Gly | Met | Ala | Leu | Gly | Phe | Leu | Pro | Glu | Val |
|     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |
| Ala | Asn | Ile | Thr | Ser | Lys | Leu | Phe | His | Pro | Lys | Pro | Gly | Ser | Leu | Phe |
| 545 |     |     |     |     | 550 |     |     |     | 555 |     |     |     |     |     | 560 |
| Val | Leu | Tyr | Ser | Asp | Gly | Ile | Thr | Glu | Ala | His | Asn | Asn | Asn | Asn | Asp |
|     |     |     | 565 |     |     |     |     | 570 |     |     |     |     |     | 575 |     |
| Met | Phe | Gly | Glu | Glu | Arg | Leu | Gln | Ala | Ala | Ile | Gln | Gly | Leu | Thr | Gly |



580 585 590  
 Lys Ser Ala Ala Asp Ala Val His Arg Leu Met Leu Ser Val Lys Thr  
 595 600 605  
 Phe Val Gly Asn Ser His Gln His Asp Asp Ile Thr Leu Leu Ile Leu  
 610 615 620  
 Lys Val Leu Ala Ser  
 625  
 <210>844  
 <211>195  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>844  
 Lys Ser Ser Lys His Arg Ser Phe Leu Leu Lys Lys Ser Gly Gly Asn  
 1 5 10 15  
 Gln Val Ser Leu Tyr Gln Lys Trp Trp Asn Ser Gln Leu Lys Lys Ser  
 20 25 30  
 Leu Cys Tyr Ser Thr Val Ala Ala Leu Ile Phe Met Ile Pro Ser Gln  
 35 40 45  
 Glu Ser Phe Ala Asp Ser Leu Ile Asp Leu Asn Leu Gly Leu Asp Pro  
 50 55 60  
 Ser Val Glu Cys Leu Ser Gly Asp Gly Ala Phe Ser Val Gly Tyr Phe  
 65 70 75 80  
 Thr Lys Ala Gly Ser Thr Pro Val Glu Tyr Gln Pro Phe Lys Tyr Asp  
 85 90 95  
 Val Ser Lys Lys Thr Phe Thr Ile Leu Ser Val Glu Thr Ala Asn Gln  
 100 105 110  
 Ser Gly Tyr Ala Tyr Gly Ile Ser Tyr Asp Gly Thr Ile Thr Val Gly  
 115 120 125  
 Thr Cys Ser Leu Gly Ala Gly Lys Tyr Asn Gly Ala Lys Trp Ser Ala  
 130 135 140  
 Asp Gly Thr Leu Thr Pro Leu Thr Gly Ile Thr Gly Gly Thr Ser His  
 145 150 155 160  
 Thr Glu Ala Arg Ala Ile Ser Lys Asp Thr Gln Val Ile Glu Gly Phe  
 165 170 175  
 Ser Tyr Asp Ala Ser Gly Gln Pro Lys Ala Val Gln Trp Ala Ser Gly  
 180 185 190  
 Gly Leu Gln  
 195  
 <210>845  
 <211>115  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>845  
 Cys Phe Arg Ala Thr Gln Gly Cys Ala Val Gly Lys Arg Arg Xaa Thr  
 1 5 10 15  
 Val Thr Gln Leu Ala Asp Ile Ser Gly Gly Ser Arg Ser Ser Tyr Ala  
 20 25 30  
 Tyr Ala Ile Ser Asp Asp Gly Thr Ile Ile Val Gly Ser Met Glu Ser  
 35 40 45  
 Thr Ile Thr Arg Lys Thr Thr Ala Val Lys Trp Val Asn Asn Val Pro  
 50 55 60  
 Thr Tyr Leu Gly Thr Leu Gly Gly Asp Ala Ser Thr Gly Leu Tyr Ile  
 65 70 75 80  
 Ser Gly Asp Gly Thr Val Ile Val Gly Ala Ala Asn Thr Ala Thr Val  
 85 90 95  
 Thr Asn Gly Asn Gln Glu Ser His Ala Tyr Met Tyr Lys Asp Asn Gln  
 100 105 110  
 Met Lys Asp  
 115  
 <210>846  
 <211>182  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>846

Gly Thr Leu Gly Gly Ala Asn Ser Ser Ala Thr Gly Val Ser Ser Asp  
 1 5 10 15  
 Gly Ser Val Ile Val Gly Gln Ala Gln Thr Ala Asp Lys Ser Val His  
 20 25 30  
 Ala Phe Gln Tyr Tyr Asn Gly Glu Met Lys Asp Leu Gly Thr Leu Gly  
 35 40 45  
 Gly Thr Ser Ser Thr Ala Lys Thr Val Ser Pro Asp Gly Lys Val Ile  
 50 55 60  
 Met Gly Arg Ser Gln Ile Ala Asp Gly Ser Trp His Ala Phe Met Cys  
 65 70 75 80  
 His Thr Asp Phe Ser Ser Asn Asn Val Leu Phe Asp Leu Asp Asn Thr  
 85 90 95  
 Tyr Lys Thr Leu Arg Glu Asn Gly Arg Gln Leu Asn Ser Ile Phe Asn  
 100 105 110  
 Leu Gln Asn Met Met Leu Gln Arg Ala Ser Asp His Glu Phe Thr Glu  
 115 120 125  
 Phe Gly Arg Ser Asn Ile Ala Leu Gly Ala Gly Leu Tyr Val Asn Ala  
 130 135 140  
 Leu Gln Asn Leu Pro Ser Xaa Leu Ala Ala Gln Tyr Phe Gly Ile Ala  
 145 150 155 160  
 Tyr Lys Ile Arg Pro Lys Tyr Arg Leu Gly Val Phe Leu Asp His Asn  
 165 170 175  
 Phe Ser Ser His Val Ser  
 180

&lt;210&gt;847

&lt;211&gt;244

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;847

Gln His Asn Ile Leu Glu Ser His Thr Lys Tyr Val Leu Asn Ile Val  
 1 5 10 15  
 Trp Gly Cys Phe Trp Thr Ile Ile Ser Ala Pro Thr Phe Pro Asn Asn  
 20 25 30  
 Phe Asn Val Ser His Asn Arg Leu Trp Met Gly Ala Phe Ile Gly Trp  
 35 40 45  
 Gln Asp Ser Asp Ala Leu Gly Ser Ser Val Lys Val Ser Phe Gly Tyr  
 50 55 60  
 Gly Lys Gln Lys Ala Thr Ile Thr Arg Glu Gln Leu Glu Asn Thr Glu  
 65 70 75 80  
 Ala Gly Ser Gly Glu Ser His Phe Glu Gly Val Ala Ala Gln Ile Glu  
 85 90 95  
 Gly Arg Tyr Gly Lys Ser Leu Gly Gly His Val Arg Val Gln Pro Phe  
 100 105 110  
 Leu Gly Leu Gln Phe Val His Ile Thr Arg Lys Glu Tyr Thr Glu Asn  
 115 120 125  
 Ala Val Gln Phe Pro Val His Tyr Asp Pro Ile Asp Tyr Ser Thr Gly  
 130 135 140  
 Val Val Tyr Leu Gly Ile Gly Ser His Ile Ala Leu Val Asp Ser Leu  
 145 150 155 160  
 His Val Gly Thr Arg Met Gly Met Glu Gln Asn Phe Ala Ala His Thr  
 165 170 175  
 Asp Arg Phe Ser Gly Ser Ile Ala Ser Ile Gly Asn Phe Val Phe Glu  
 180 185 190  
 Lys Leu Asp Val Thr His Thr Arg Ala Phe Ala Glu Met Arg Val Asn  
 195 200 205  
 Tyr Glu Leu Pro Tyr Leu Gln Ser Leu Asn Leu Ile Leu Arg Val Asn  
 210 215 220  
 Gln Gln Pro Leu Gln Gly Val Met Gly Phe Ser Ser Asp Leu Arg Tyr  
 225 230 235 240  
 Ala Leu Gly Phe

&lt;210&gt;848

&lt;211&gt;687

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;848

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Ser Glu Leu Tyr Ser Ser Tyr Leu Gln Pro Cys Leu Asn Met Ser Ile
  1           5           10           15
Val Arg Asn Ser Ala Leu Pro Leu Pro Cys Leu Ser Arg Ser Glu Thr
          20           25           30
Phe Lys Lys Val Arg Ser His Met Lys Phe Met Lys Val Leu Thr Pro
          35           40           45
Trp Ile Tyr Arg Lys Asp Leu Trp Val Thr Ala Phe Leu Leu Thr Ala
          50           55           60
Ile Pro Gly Ser Phe Ala His Thr Leu Val Asp Ile Ala Gly Glu Pro
          65           70           75           80
Arg His Ala Ala Gln Ala Thr Gly Val Ser Gly Asp Gly Lys Ile Val
          85           90           95
Ile Gly Met Lys Val Pro Asp Asp Pro Phe Ala Ile Thr Val Gly Phe
          100          105          110
Gln Tyr Ile Asp Gly His Leu Gln Pro Leu Glu Ala Val Arg Pro Gln
          115          120          125
Cys Ser Val Tyr Pro Asn Gly Ile Thr Pro Asp Gly Thr Val Ile Val
          130          135          140
Gly Thr Asn Tyr Ala Ile Gly Met Gly Ser Val Ala Val Lys Trp Val
          145          150          155          160
Asn Gly Lys Val Ser Glu Leu Pro Met Leu Pro Asp Thr Leu Asp Ser
          165          170          175
Val Ala Ser Ala Val Ser Ala Asp Gly Arg Val Ile Gly Gly Asn Arg
          180          185          190
Asn Ile Asn Leu Gly Ala Ser Val Ala Val Lys Trp Glu Asp Asp Val
          195          200          205
Ile Thr Gln Leu Pro Ser Leu Pro Asp Ala Met Asn Ala Cys Val Asn
          210          215          220
Gly Ile Ser Ser Asp Gly Ser Ile Ile Val Gly Thr Met Val Asp Val
          225          230          235          240
Ser Trp Arg Asn Thr Ala Val Gln Trp Ile Gly Asp Gln Leu Ser Val
          245          250          255
Ile Gly Thr Leu Gly Gly Thr Thr Ser Val Ala Ser Ala Ile Ser Thr
          260          265          270
Asp Gly Thr Val Ile Val Gly Gly Ser Glu Asn Ala Asp Ser Gln Thr
          275          280          285
His Ala Tyr Ala Tyr Lys Asn Gly Val Met Ser Asp Ile Gly Thr Leu
          290          295          300
Gly Gly Phe Tyr Ser Leu Ala His Ala Val Ser Ser Asp Gly Ser Val
          305          310          315          320
Ile Val Gly Val Ser Thr Asn Ser Glu His Arg Tyr His Ala Phe Gln
          325          330          335
Tyr Ala Asp Gly Gln Met Val Asp Leu Gly Thr Leu Gly Gly Pro Glu
          340          345          350
Ser Tyr Ala Gln Gly Val Ser Gly Asp Gly Lys Val Ile Val Gly Arg
          355          360          365
Ala Gln Val Pro Ser Gly Asp Trp His Ala Phe Leu Cys Pro Phe Gln
          370          375          380
Ala Pro Ser Pro Ala Pro Val His Gly Gly Ser Thr Val Val Thr Ser
          385          390          395          400
Gln Asn Pro Arg Gly Met Val Asp Ile Asn Ala Thr Tyr Ser Ser Leu
          405          410          415
Lys Asn Ser Gln Gln Gln Leu Gln Arg Leu Leu Ile Gln His Ser Ala
          420          425          430
Lys Val Glu Ser Val Ser Ser Gly Ala Pro Ser Phe Thr Ser Val Lys
          435          440          445
Gly Ala Ile Ser Lys Gln Ser Pro Ala Val Gln Asn Asp Val Gln Lys
          450          455          460
Gly Thr Phe Leu Ser Tyr Arg Ser Gln Val His Gly Asn Val Gln Asn
          465          470          475          480
Gln Gln Leu Leu Thr Gly Ala Phe Met Asp Trp Lys Leu Ala Ser Ala
          485          490          495

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Pro Lys Cys Gly Phe Lys Val Ala Leu His Tyr Gly Ser Gln Asp Ala  
 500 505 510  
 Leu Val Glu Arg Ala Ala Leu Pro Tyr Thr Glu Gln Gly Leu Gly Ser  
 515 520 525  
 Ser Val Leu Ser Gly Phe Gly Gly Gln Val Gln Gly Arg Tyr Asp Phe  
 530 535 540  
 Asn Leu Gly Glu Thr Val Val Leu Gln Pro Phe Met Gly Ile Gln Val  
 545 550 555 560  
 Leu His Leu Ser Arg Glu Gly Tyr Ser Glu Lys Asn Val Arg Phe Pro  
 565 570 575  
 Val Ser Tyr Asp Ser Val Ala Tyr Ser Ala Ala Thr Ser Phe Met Gly  
 580 585 590  
 Ala His Val Phe Ala Ser Leu Ser Pro Lys Met Ser Thr Ala Ala Thr  
 595 600 605  
 Leu Gly Val Glu Arg Asp Leu Asn Ser His Ile Asp Glu Phe Lys Gly  
 610 615 620  
 Ser Val Ser Ala Met Gly Asn Phe Val Leu Glu Asn Ser Thr Val Ser  
 625 630 635 640  
 Val Leu Arg Pro Phe Ala Ser Leu Ala Met Tyr Tyr Asp Val Arg Gln  
 645 650 655  
 Gln Gln Leu Val Thr Leu Ser Val Val Met Asn Gln Gln Pro Leu Thr  
 660 665 670  
 Gly Thr Leu Ser Leu Val Ser Gln Ser Ser Tyr Asn Leu Ser Phe  
 675 680 685

&lt;210&gt;849

&lt;211&gt;228

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;849

Val Leu Ile Leu Thr Trp Ile Asn Val Leu Thr Lys Leu Gly Leu Asn  
 1 5 10 15  
 Met Ser Lys Lys Ile Lys Val Leu Gly His Leu Thr Leu Cys Thr Leu  
 20 25 30  
 Phe Arg Gly Val Leu Cys Ala Ala Leu Ser Asn Ile Gly Tyr Ala  
 35 40 45  
 Ser Thr Ser Gln Glu Ser Pro Tyr Gln Lys Ser Ile Glu Asp Trp Lys  
 50 55 60  
 Gly Tyr Thr Phe Thr Asp Leu Glu Leu Leu Ser Lys Glu Gly Trp Ser  
 65 70 75 80  
 Glu Ala His Ala Ile Ser Gly Asn Gly Ser Arg Ile Val Gly Ala Ser  
 85 90 95  
 Gly Ala Gly Gln Gly Ser Val Thr Ala Val Ile Trp Glu Ser His Leu  
 100 105 110  
 Ile Lys His Leu Gly Thr Leu Gly Glu Ala Ser Ser Ala Glu Gly  
 115 120 125  
 Ile Ser Asn Asp Gly Glu Val Val Val Gly Trp Ser Asp Thr Arg Glu  
 130 135 140  
 Gly Tyr Thr His Ala Phe Val Phe Asp Gly Arg Asp Met Lys Asp Leu  
 145 150 155 160  
 Gly Thr Leu Gly Ala Thr Tyr Ser Val Ala Arg Gly Val Ser Gly Asp  
 165 170 175  
 Gly Ser Ile Ile Val Gly Val Ser Ala Thr Ala Arg Gly Glu Asp Tyr  
 180 185 190  
 Gly Met Ala Ser Trp Cys Gln Val Gly Lys Arg Glu Asn Gln Thr Ile  
 195 200 205  
 Glu Val Val Ala Ser Arg Ser Leu Gly Leu Arg Arg Met Gln Ser Leu  
 210 215 220  
 Arg Met Val Arg

225

&lt;210&gt;850

&lt;211&gt;173

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;850

Ser Cys Cys Leu Lys Val Ser Gly Ser Glu Ala Asn Ala Ile Ser Glu  
 1 5 10 15  
 Asp Gly Thr Val Ile Val Gly Arg Gly Glu Ile Ser Arg Asn His Ile  
 20 25 30  
 Val Ala Val Lys Trp Asn Lys Asn Ala Val Tyr Ser Leu Gly Thr Leu  
 35 40 45  
 Gly Gly Ser Val Ala Ser Ala Glu Ala Ile Ser Ala Asn Gly Lys Val  
 50 55 60  
 Ile Val Gly Trp Ser Thr Thr Asn Asn Gly Glu Thr His Ala Phe Met  
 65 70 75 80  
 His Lys Asp Glu Thr Met His Asp Leu Gly Thr Leu Gly Gly Gly Phe  
 85 90 95  
 Ser Val Ala Thr Gly Val Ser Ala Asp Gly Arg Ala Ile Val Gly Phe  
 100 105 110  
 Ser Ala Val Lys Thr Gly Glu Ile His Ala Phe Tyr Tyr Ala Glu Gly  
 115 120 125  
 Glu Met Glu Asp Leu Thr Thr Leu Gly Gly Glu Glu Ala Arg Val Phe  
 130 135 140  
 Asp Ile Ser Ser Glu Gly Asn Asp Ile Ile Gly Ser Ile Lys Thr Asp  
 145 150 155 160  
 Ala Gly Ala Glu Arg Ala Tyr Leu Phe His Ile His Lys  
 165 170

&lt;210&gt;851

&lt;211&gt;349

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;851

Val Val Phe Glu Ile Ile Phe Val Val Arg Val Pro Met Lys Lys Thr  
 1 5 10 15  
 Cys Cys Gln Asn Tyr Arg Ser Ile Gly Val Val Phe Ser Val Val Leu  
 20 25 30  
 Phe Val Leu Thr Thr Gln Thr Leu Phe Ala Gly His Phe Ile Asp Ile  
 35 40 45  
 Gly Thr Ser Gly Leu Tyr Ser Trp Ala Arg Gly Val Ser Gly Asp Gly  
 50 55 60  
 Arg Val Val Val Gly Tyr Glu Gly Gly Asn Ala Phe Lys Tyr Val Asp  
 65 70 75 80  
 Gly Glu Lys Phe Leu Leu Glu Gly Leu Val Pro Arg Ser Glu Ala Leu  
 85 90 95  
 Val Phe Lys Ala Ser Tyr Asp Gly Ser Val Ile Ile Gly Ile Ser Asp  
 100 105 110  
 Gln Asp Pro Ser Cys Arg Ala Val Lys Trp Val Asn Gly Ala Leu Val  
 115 120 125  
 Asp Leu Gly Ile Phe Ser Glu Gly Met Gln Ser Phe Ala Glu Gly Val  
 130 135 140  
 Ser Ser Asp Gly Lys Thr Ile Val Gly Cys Leu Tyr Ser Asp Asp Thr  
 145 150 155 160  
 Glu Thr Asn Phe Ala Val Lys Trp Asp Glu Thr Gly Met Val Val Leu  
 165 170 175  
 Pro Asn Leu Pro Glu Asp Arg His Ser Cys Ala Trp Asp Ala Ser Glu  
 180 185 190  
 Asp Gly Ser Val Ile Val Gly Asp Ala Met Gly Ser Glu Glu Ile Ala  
 195 200 205  
 Lys Ala Val Tyr Trp Lys Asp Gly Glu Gln His Leu Leu Ser Asn Ile  
 210 215 220  
 Pro Gly Ala Lys Arg Ser Ser Ala His Ala Val Ser Lys Asp Gly Ser  
 225 230 235 240  
 Phe Ile Val Gly Glu Phe Ile Ser Glu Glu Asn Glu Val His Ala Phe  
 245 250 255  
 Val Tyr His Asn Gly Val Ile Lys Asp Ile Gly Thr Leu Gly Gly Asp  
 260 265 270  
 Tyr Ser Val Ala Thr Gly Val Ser Arg Asp Gly Lys Val Ile Val Gly  
 275 280 285  
 His Ser Thr Arg Thr Asp Gly Glu Tyr Arg Ala Phe Lys Tyr Val Asp

290 295 300  
 Gly Arg Met Ile Asp Leu Gly Thr Leu Gly Gly Ser Ala Ser Phe Ala  
 305 310 315 320  
 Phe Gly Val Ser Asp Asp Gly Lys Thr Ile Val Gly Lys Phe Glu Thr  
 325 330 335  
 Glu Leu Gly Glu Cys His Ala Phe Ile Tyr Leu Asp Asp  
 340 345  
 <210>852  
 <211>354  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>852  
 Lys Arg Glu Glu Asn Met Ala Ala Ile Lys Gln Ile Leu Arg Ser Met  
 1 5 10 15  
 Leu Ser Gln Ser Ser Leu Trp Met Val Leu Phe Ser Leu Tyr Ser Leu  
 20 25 30  
 Ser Gly Tyr Cys Tyr Val Ile Thr Asp Lys Pro Glu Asp Asp Phe His  
 35 40 45  
 Ser Ser Ser Ala Val Lys Trp Asp His Trp Gly Lys Thr Thr Leu Ser  
 50 55 60  
 Arg Leu Ser Asn Lys Lys Ala Ser Ala Lys Ala Val Ser Gly Thr Gly  
 65 70 75 80  
 Ala Thr Thr Val Gly Phe Ile Lys Asp Thr Trp Ser Arg Thr Tyr Ala  
 85 90 95  
 Val Arg Trp Asn Tyr Trp Gly Thr Lys Glu Leu Pro Thr Ser Ser Trp  
 100 105 110  
 Val Lys Lys Ser Lys Ala Thr Gly Ile Ser Ser Asp Gly Ser Ile Ile  
 115 120 125  
 Ala Gly Ile Val Glu Asn Glu Leu Ser Gln Ser Phe Ala Val Thr Trp  
 130 135 140  
 Lys Asn Asn Glu Met Tyr Leu Leu Pro Ser Thr Trp Ala Val Gln Ser  
 145 150 155 160  
 Lys Ala Tyr Gly Ile Ser Ser Asp Gly Ser Val Ile Val Gly Ser Ala  
 165 170 175  
 Lys Asp Ala Trp Ser Arg Thr Phe Ala Val Lys Trp Thr Gly His Glu  
 180 185 190  
 Ala Gln Val Leu Pro Val Gly Trp Ala Val Lys Ser Val Ala Asn Ser  
 195 200 205  
 Val Ser Ala Asn Gly Ser Ile Ile Val Gly Ser Val Gln Asp Ala Ser  
 210 215 220  
 Gly Ile Leu Tyr Ala Val Lys Trp Glu Gly Asn Thr Ile Thr His Leu  
 225 230 235 240  
 Gly Thr Leu Gly Gly Tyr Ser Ala Ile Ala Lys Ala Val Ser Asn Asn  
 245 250 255  
 Gly Lys Val Ile Val Gly Arg Ser Glu Thr Tyr Tyr Gly Glu Val His  
 260 265 270  
 Ala Phe Cys His Lys Asn Gly Val Met Ser Asp Leu Gly Thr Leu Gly  
 275 280 285  
 Gly Ser Tyr Ser Ala Ala Lys Gly Val Ser Ala Thr Gly Lys Val Ile  
 290 295 300  
 Val Gly Met Ser Thr Thr Ala Asn Gly Lys Leu His Ala Phe Lys Tyr  
 305 310 315 320  
 Val Gly Gly Arg Met Ile Asp Leu Gly Glu Tyr Ser Trp Lys Glu Ala  
 325 330 335  
 Cys Ala Asn Ala Val Ser Ile Asp Gly Glu Ile Ile Val Gly Val Gln  
 340 345 350  
 Ser Glu

<210>853  
 <211>452  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>853  
 Met Phe Glu Ala Val Ile Ala Asp Ile Gln Ala Arg Glu Ile Leu Asp

|                 |                 |                     |                     |
|-----------------|-----------------|---------------------|---------------------|
| 1               | 5               | 10                  | 15                  |
| Ser Arg Gly Tyr | Pro Thr Leu His | Val Lys Val Thr Thr | Ser Thr Gly         |
| 20              | 25              | 30                  |                     |
| Ser Val Gly Glu | Ala Arg Val Pro | Ser Gly Ala Ser Thr | Gly Lys Lys         |
| 35              | 40              | 45                  |                     |
| Glu Ala Leu Glu | Phe Arg Asp Thr | Asp Ser Pro Arg Tyr | Gln Gly Lys         |
| 50              | 55              | 60                  |                     |
| Gly Val Leu Gln | Ala Val Lys Asn | Val Lys Glu Ile Leu | Phe Pro Leu         |
| 65              | 70              | 75                  | 80                  |
| Val Lys Gly Cys | Ser Val Tyr Glu | Gln Ser Leu Ile Asp | Ser Leu Met         |
| 85              | 90              | 95                  |                     |
| Met Asp Ser Asp | Gly Ser Pro Asn | Lys Glu Thr Leu Gly | Ala Asn Ala         |
| 100             | 105             | 110                 |                     |
| Ile Leu Gly Val | Ser Leu Ala Thr | Ala His Ala Ala     | Ala Thr Leu         |
| 115             | 120             | 125                 |                     |
| Arg Arg Pro Leu | Tyr Arg Tyr Leu | Gly Gly Cys Phe     | Ala Cys Ser Leu     |
| 130             | 135             | 140                 |                     |
| Pro Cys Pro Met | Met Asn Leu Ile | Asn Gly Gly Met     | His Ala Asp Asn     |
| 145             | 150             | 155                 | 160                 |
| Gly Leu Gly Phe | Gln Glu Phe Met | Ile Arg Pro Ile     | Gly Ala Ser Ser     |
| 165             | 170             | 175                 |                     |
| Ile Lys Glu Ala | Val Asn Met Gly | Ala Asp Val Phe     | His Thr Leu Lys     |
| 180             | 185             | 190                 |                     |
| Lys Leu Leu His | Glu Arg Gly Leu | Ser Thr Gly Val     | Gly Asp Glu Gly     |
| 195             | 200             | 205                 |                     |
| Gly Phe Ala Pro | Asn Leu Ala Ser | Asn Glu Glu Ala     | Leu Glu Leu Leu     |
| 210             | 215             | 220                 |                     |
| Leu Leu Ala Ile | Glu Lys Ala Gly | Phe Thr Pro Gly     | Lys Asp Ile Ser     |
| 225             | 230             | 235                 | 240                 |
| Leu Ala Leu Asp | Cys Ala Ala Ser | Ser Phe Tyr Asn     | Val Lys Thr Gly     |
| 245             | 250             | 255                 |                     |
| Thr Tyr Asp Gly | Arg His Tyr Glu | Glu Gln Ile Ala     | Ile Leu Ser Asn     |
| 260             | 265             | 270                 |                     |
| Leu Cys Asp Arg | Tyr Pro Ile Asp | Ser Ile Glu Asp     | Gly Leu Ala Glu     |
| 275             | 280             | 285                 |                     |
| Glu Asp Tyr Asp | Gly Trp Ala Leu | Leu Thr Glu Val     | Leu Gly Glu Lys     |
| 290             | 295             | 300                 |                     |
| Val Gln Ile Val | Gly Asp Asp Leu | Phe Val Thr Asn     | Pro Glu Leu Ile     |
| 305             | 310             | 315                 | 320                 |
| Leu Glu Gly Ile | Ser Asn Gly Leu | Ala Asn Ser Val     | Leu Ile Lys Pro     |
| 325             | 330             | 335                 |                     |
| Asn Gln Ile Gly | Thr Leu Thr Glu | Thr Val Tyr Ala     | Ile Lys Leu Arg     |
| 340             | 345             | 350                 |                     |
| Lys Trp Leu Ala | Ile Leu Gln Leu | Phe Leu Ile Ala     | Gln Glu Lys Leu     |
| 355             | 360             | 365                 |                     |
| Arg Thr Leu Arg | Leu Gln Ile Leu | Leu Leu Leu Pro     | Ser Thr Leu Val Lys |
| 370             | 375             | 380                 |                     |
| Ser Lys Gln Ala | Leu Tyr His Val | Leu Ser Val Leu     | Gln Asn Thr Ile     |
| 385             | 390             | 395                 | 400                 |
| Asp Ser Trp Lys | Leu Lys Lys Ser | Leu Asp Pro Lys     | Gln Phe Ser Gln     |
| 405             | 410             | 415                 |                     |
| Ile Leu Met Tyr | Phe Leu Thr Arg | Ile Leu Arg Asn     | Arg Gly Ile Phe     |
| 420             | 425             | 430                 |                     |
| Ser Ile Ser Ile | Leu Ser Pro Asn | Gln Glu Tyr Ile     | Ala Asp Leu Trp     |
| 435             | 440             | 445                 |                     |
| Ala Leu Ser Phe |                 |                     |                     |
| 450             |                 |                     |                     |

&lt;210&gt;854

&lt;211&gt;84

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;854

|   |
|---|
| Asn Ser Val Cys Tyr Gln Val Ala Gln Met Ala Gly Tyr Thr Thr Ile |
| 1 5 10 15   |

Ile Ser His Arg Ser Gly Glu Thr Thr Asp Thr Thr Ile Ala Asp Leu  
                   20                  25                  30  
 Ala Val Ala Phe Asn Ala Gly Gln Ile Lys Thr Gly Ser Leu Ser Arg  
                   35                  40                  45  
 Ser Glu Arg Val Ala Lys Tyr Asn Arg Leu Met Glu Ile Glu Glu Glu  
           50                  55                  60  
 Leu Gly Ser Glu Ala Ile Phe Thr Asp Ser Asn Val Phe Ser Tyr Glu  
       65                  70                  75                  80  
 Asp Ser Glu Glu

&lt;210&gt;855

&lt;211&gt;285

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;855

Pro Phe Glu Glu Ala Gln Lys Tyr Phe Arg Lys Val Ile Tyr Val Ser  
   1                  5                  10                  15  
 Ala Thr Pro Gly Asp Thr Glu Val Gln Glu Ser Ser Gly His Ile Val  
                   20                  25                  30  
 Gln Gln Ile Ile Arg Pro Thr Gly Ile Pro Asp Pro Met Pro Glu Ile  
                   35                  40                  45  
 Arg Pro Ala Thr Gly Gln Val Asp Asp Leu Leu Glu Glu Ile Arg Leu  
           50                  55                  60  
 Arg Leu Ser Gln Lys His Glu Lys Ile Leu Val Ile Ser Ile Thr Lys  
       65                  70                  75                  80  
 Lys Leu Ala Glu Asp Met Ala Gly Phe Leu Ser Glu Leu Glu Ile Pro  
                   85                  90                  95  
 Ala Ala Tyr Leu His Ser Gly Ile Glu Thr Ala Glu Arg Thr Gln Ile  
                   100                  105                  110  
 Leu Thr Asp Leu Arg Ser Gly Val Ile Asp Val Leu Ile Gly Val Asn  
           115                  120                  125  
 Leu Leu Arg Glu Gly Leu Asp Leu Pro Glu Val Ser Leu Val Ala Ile  
       130                  135                  140  
 Leu Asp Ala Asp Lys Glu Gly Phe Leu Arg Ser Thr Ser Ser Leu Ile  
       145                  150                  155                  160  
 Gln Phe Cys Gly Arg Ala Ala Arg Asn Ile Asn Gly Lys Val Ile Phe  
                   165                  170                  175  
 Tyr Ala Asp Gln Lys Thr Arg Ser Ile Glu Glu Thr Leu Arg Glu Thr  
                   180                  185                  190  
 Glu Arg Arg Arg Gln Ile Gln Leu Asp Tyr Asn Lys Glu His Asn Ile  
           195                  200                  205  
 Val Pro Lys Pro Ile Ile Lys Ala Ile Phe Ala Asn Pro Ile Leu Gln  
           210                  215                  220  
 Thr Ser Lys Asp Ser Glu Ser Pro Lys Glu Ser Gln Arg Pro Leu Ser  
       225                  230                  235                  240  
 Lys Glu Asp Leu Glu Glu Gln Ile Lys Lys Tyr Glu Ala Leu Met Gln  
                   245                  250                  255  
 Arg Ala Ala Lys Glu Phe Arg Phe Asn Glu Ala Ala Lys Tyr Arg Asp  
           260                  265                  270  
 Ala Met Gln Ala Cys Lys Glu Gln Leu Leu Tyr Leu Phe  
           275                  280                  285

&lt;210&gt;856

&lt;211&gt;372

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;856

Ile Ile Phe Thr Met Thr Phe Gln Leu His Ala Pro Phe Ala Pro Cys  
   1                  5                  10                  15  
 Gly Asp Gln Pro Glu Ala Ile Ala Arg Leu Ser Ala Gly Val Arg Asn  
                   20                  25                  30  
 Gln Val Lys Ser Gln Val Leu Leu Gly Thr Thr Gly Ser Gly Lys Thr  
           35                  40                  45  
 Phe Thr Ile Ala Asn Val Val Ala Asn Val Asn Leu Pro Thr Leu Val  
       50                  55                  60



Leu Ala His Asn Lys Thr Leu Ala Ala Gln Leu Tyr Gln Glu Phe Arg  
 65 70 75 80  
 Glu Phe Phe Pro Asn Asn Ala Val Glu Tyr Phe Ile Ser Tyr Tyr Asp  
 85 90 95  
 Tyr Tyr Gln Pro Glu Ala Tyr Ile Ala Arg Ser Asp Thr Tyr Ile Glu  
 100 105 110  
 Lys Ser Leu Leu Ile Asn Asp Glu Ile Asp Lys Leu Arg Leu Ser Ala  
 115 120 125  
 Thr Arg Ser Ile Leu Glu Arg Arg Asp Thr Leu Ile Val Ser Ser Val  
 130 135 140  
 Ser Cys Ile Tyr Gly Ile Gly Ser Pro Glu Asn Tyr Thr Ser Met Ala  
 145 150 155 160  
 Leu Val Leu Glu Val Gly Lys Glu Tyr Pro Arg Asn Ile Leu Thr Ala  
 165 170 175  
 Gln Leu Val Lys Met His Tyr Gln Ala Ser Pro Ile Pro Gln Arg Ser  
 180 185 190  
 Ala Phe Arg Glu Arg Gly Ser Val Ile Asp Ile Phe Pro Ala Tyr Glu  
 195 200 205  
 Ser Glu Leu Ala Leu Arg Leu Glu Phe Leu Asn Asp Thr Leu Thr Ser  
 210 215 220  
 Ile Glu Tyr Ser Asp Pro Leu Thr Met Ile Pro Lys Glu Ser Val Pro  
 225 230 235 240  
 Ser Ala Thr Leu Tyr Pro Gly Ser His Tyr Val Ile Pro Glu Ala Ile  
 245 250 255  
 Arg Glu Gln Ala Ile Arg Thr Ile Gln Glu Glu Leu Glu Glu Arg Met  
 260 265 270  
 Ala Phe Phe Asp Asp Arg Pro Ile Glu Lys Asp Arg Ile Phe His Arg  
 275 280 285  
 Thr Thr His Asp Ile Glu Met Ile Lys Glu Ile Gly Phe Cys Lys Gly  
 290 295 300  
 Ile Glu Asn Tyr Ser Arg His Phe Thr Gly Ala Pro Pro Gly Ala Pro  
 305 310 315 320  
 Pro Thr Cys Leu Leu Asp Tyr Phe Pro Glu Asp Phe Leu Leu Ile Ile  
 325 330 335  
 Asp Glu Ser His Gln Thr Leu Pro Gln Ile Arg Ala Met Tyr Arg Gly  
 340 345 350  
 Asp Gln Ser Arg Lys Gln Ser Leu Val Glu Tyr Gly Phe Arg Phe Pro  
 355 360 365  
 Ser Gly Leu Arg  
 370  
 <210>857  
 <211>344  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>857  
 Met Asn Lys Lys Lys Arg Val Leu Thr Gly Asp Arg Pro Thr Gly Lys  
 1 5 10 15  
 Leu His Leu Gly His Trp Val Gly Ser Ile Lys Asn Arg Leu Glu Leu  
 20 25 30  
 Gln Asn Ser Pro Glu Tyr Asp Cys Phe Phe Ile Ile Ala Asp Leu His  
 35 40 45  
 Thr Leu Thr Thr Lys Ile Arg Lys Glu Glu Val Leu Asp Val Asp Asn  
 50 55 60  
 His Ile Tyr Glu Val Leu Ala Asp Trp Leu Ser Val Gly Ile Asp Pro  
 65 70 75 80  
 Thr Lys Ser Ile Ile Tyr Leu Gln Ser Ala Ile Pro Glu Ile Tyr Glu  
 85 90 95  
 Leu His Leu Leu Phe Ser Met Leu Ile Ser Ile Asn Arg Val Met Gly  
 100 105 110  
 Ile Pro Ser Leu Lys Asp Met Ala Arg Asn Ala Ser Ile Glu Glu Gly  
 115 120 125  
 Ser Leu Ser Tyr Gly Leu Ile Gly Tyr Pro Ile Leu Gln Ser Ala Asp  
 130 135 140  
 Ile Leu Leu Ala Lys Ala Gln Phe Val Pro Val Gly Lys Asp Asn Glu

145 150 155 160  
 Ala His Val Glu Leu Thr Arg Asp Ile Ala Arg Asn Phe Asn Arg Leu  
 165 170 175  
 Tyr Gly Gln Val Phe Pro Glu Pro Glu Val Leu Gln Gly Glu Leu Thr  
 180 185 190  
 Ser Leu Val Gly Ile Asp Gly Gln Gly Lys Met Ser Lys Ser Ala Asn  
 195 200 205  
 Asn Ala Ile Tyr Leu Ser Asp Ser Asp Ala Thr Ile Thr Glu Lys Val  
 210 215 220  
 Arg Lys Met Tyr Thr Asp Pro Asn Arg Ile Arg Ala Thr Thr Pro Gly  
 225 230 235 240  
 Arg Val Glu Gly Asn Pro Leu Phe Ile Tyr His Asp Ile Phe Asn Pro  
 245 250 255  
 His Lys Asp Glu Val Glu Glu Phe Lys Ala Arg Tyr Arg Gln Gly Cys  
 260 265 270  
 Ile Lys Asp Ile Glu Val Lys Ala Arg Leu Ala Glu Glu Leu Ile His  
 275 280 285  
 Phe Leu Lys Pro Ile Lys Glu Arg Arg Ser Glu Phe Leu Ser Lys Pro  
 290 295 300  
 Leu Ala Leu Gln Asn Val Leu Glu Asp Gly Thr His Lys Met Arg Glu  
 305 310 315 320  
 Val Ala Lys Val Thr Met Glu Glu Val His Asp Lys Phe Gly Phe Ser  
 325 330 335  
 His Lys Trp Arg Ser Leu Leu Lys  
 340

&lt;210&gt;858

&lt;211&gt;185

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;858

Phe Met Ala Ala Lys Thr Lys Thr Leu Glu Leu Glu Asp Asn Val Phe  
 1 5 10 15  
 Leu Leu Leu Glu Gly Asn Leu Lys Arg Ile Phe Ala Thr Pro Ile Gly  
 20 25 30  
 Tyr Thr Thr Phe Arg Glu Phe Gln Asn Val Val Phe Asn Cys Ala Asn  
 35 40 45  
 Gly Gln Gln Glu Ile Ala Asn Phe Phe Phe Glu Met Leu Ile Asn Gly  
 50 55 60  
 Lys Leu Thr Gln Glu Leu Ala Pro Gln Gln Lys Gln Ala Ala His Ser  
 65 70 75 80  
 Leu Ile Ala Glu Phe Met Met Pro Ile Arg Val Ala Lys Asp Ile His  
 85 90 95  
 Glu Arg Gly Glu Phe Ile Asn Phe Ile Thr Ser Asp Met Leu Thr Gln  
 100 105 110  
 Gln Glu Arg Cys Ile Phe Leu Asn Arg Leu Ala Arg Val Asp Gly Gln  
 115 120 125  
 Glu Phe Leu Leu Met Thr Asp Val Gln Asn Thr Cys His Leu Ile Arg  
 130 135 140  
 His Leu Leu Ala Arg Leu Leu Glu Ala Gln Lys Asn Pro Val Gly Glu  
 145 150 155 160  
 Lys Asn Leu Gln Glu Ile Gln Glu Glu Ile Thr Ser Leu Lys Asn His  
 165 170 175  
 Phe Asp Glu Leu Thr Lys Ala Leu Gln  
 180 185

&lt;210&gt;859

&lt;211&gt;250

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;859

Met Gly Asn Leu Lys Thr Leu Leu Glu Ser Arg Phe Lys Lys Asn Thr  
 1 5 10 15  
 Pro Thr Lys Met Glu Ala Leu Ala Arg Lys Arg Met Glu Gly Asp Pro  
 20 25 30  
 Ser Pro Leu Ala Val Arg Leu Ser Asn Pro Thr Leu Ser Ser Lys Glu

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Lys | Thr | Ile | Ala | Val | Asn | Ser | Phe | Lys | Gly | Gly | Thr | Ala | Lys | Thr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ser | Thr | Thr | Leu | His | Leu | Gly | Ala | Ala | Leu | Ala | Gln | Tyr | His | Gln | Ala |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Arg | Val | Leu | Leu | Ile | Asp | Phe | Asp | Ala | Gln | Ala | Asn | Leu | Thr | Ser | Gly |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Leu | Gly | Leu | Asp | Pro | Asp | Cys | Tyr | Asp | Ser | Leu | Ala | Val | Val | Leu | Gln |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Gly | Glu | Lys | Glu | Ile | Gln | Glu | Val | Ile | Arg | Pro | Ile | Gln | Asp | Thr | Gln |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     |     | 80  |
| Leu | Asp | Leu | Ile | Pro | Ala | Asp | Thr | Trp | Leu | Glu | Arg | Ile | Glu | Val | Ser |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Gly | Asn | Leu | Ala | Ala | Asp | Arg | Tyr | Ser | His | Glu | Arg | Leu | Lys | Tyr | Val |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Leu | Gly | Ser | Val | Gln | Asp | Lys | Tyr | Asp | Tyr | Val | Ile | Ile | Asp | Thr | Pro |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Pro | Ser | Leu | Cys | Trp | Leu | Thr | Glu | Ser | Ala | Leu | Ile | Ala | Ala | Asp | Tyr |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ala | Leu | Ile | Cys | Ala | Thr | Pro | Glu | Phe | Tyr | Ser | Val | Lys | Gly | Leu | Glu |
| 145 |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     |     | 160 |
| Arg | Leu | Ala | Gly | Phe | Ile | Gln | Gly | Ile | Ser | Ala | Arg | His | Pro | Leu | Thr |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Ile | Leu | Gly | Val | Ala | Leu | Ser | Phe | Trp | Asn | Cys | Arg | Gly | Lys | Asn | Asn |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Ser | Ala | Phe | Ala | Glu | Leu | Ile | His | Lys | Thr | Phe | Pro | Gly | Lys | Leu | Leu |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Asn | Thr | Lys | Ile | Arg | Arg | Asp | Ile | Thr | Val | Ser | Glu | Ala | Ala | Ile | His |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Gly | Lys | Pro | Val | Phe | Ala | Thr | Ser | Pro | Ser | Ala | Arg | Ala | Ser | Glu | Asp |
| 225 |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     |     | 240 |
| Tyr | Phe | Asn | Leu | Thr | Lys | Glu | Leu | Leu | Ile | Leu | Leu | Arg | Asp | Ile |     |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |

&lt;210&gt;861

&lt;211&gt;593

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;861

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Arg Ser Phe His Pro Pro Lys Arg Arg Arg His Leu Ser Ile Ser Asp
 1           5           10           15
Phe Arg Arg Ser Arg Arg Arg Glu Ile Phe Leu His Thr Ser Ala His
           20           25           30
Leu Leu Ala Gln Ala Val Leu Arg Leu Trp Pro Asp Ala Ile Pro Thr
           35           40           45
Ile Gly Pro Val Ile Asp His Gly Phe Tyr Tyr Asp Phe Ala Asn Leu
           50           55           60
Ser Ile Ser Glu Ser Asp Phe Pro Leu Ile Glu Asp Thr Val Lys Gln
           65           70           75           80
Ile Val Asp Glu Lys Leu Ala Ile Ser Arg Phe Thr Tyr Gly Asp Lys
           85           90           95
Gln Gln Ala Leu Ala Gln Phe Pro Gln Asn Pro Phe Lys Thr Glu Leu
           100          105          110
Ile Arg Glu Leu Pro Glu Asn Glu Glu Ile Ser Ala Tyr Ser Gln Gly
           115          120          125
Glu Phe Phe Asp Leu Cys Arg Gly Pro His Leu Pro Ser Thr Ala His
           130          135          140
Val Lys Ala Phe Lys Val Leu Arg Thr Ser Ala Ala Tyr Trp Arg Gly
           145          150          155          160
Asp Pro Ser Arg Glu Ser Leu Val Arg Ile Tyr Gly Thr Ser Phe Pro
           165          170          175
Thr Ser Lys Glu Leu Arg Ala His Leu Glu Gln Ile Glu Glu Ala Lys
           180          185          190
Lys Arg Asp His Arg Val Leu Gly Ala Lys Leu Asp Leu Phe Ser Gln
           195          200          205
Gln Glu Ser Ser Pro Gly Met Pro Phe Phe His Pro Arg Gly Met Ile
           210          215          220
Val Trp Asp Ala Leu Ile Arg Tyr Trp Lys Gln Leu His Thr Ala Ala
           225          230          235          240
Gly Tyr Lys Glu Ile Leu Thr Pro Gln Leu Met Asn Arg Gln Leu Trp
           245          250          255
Glu Val Ser Gly His Trp Asp Asn Tyr Lys Ala Asn Met Tyr Thr Leu
           260          265          270
Gln Ile Asp Asp Glu Asp Tyr Ala Ile Lys Pro Met Asn Cys Pro Gly
           275          280          285
Cys Met Leu Tyr Tyr Lys Thr Arg Leu His Ser Tyr Lys Glu Phe Pro
           290          295          300
Leu Arg Val Ala Glu Val Gly His Val His Arg Gln Glu Ala Ser Gly
           305          310          315          320
Ala Leu Ser Gly Leu Met Arg Val Arg Ala Phe His Gln Asp Asp Ala
           325          330          335
His Val Phe Leu Thr Pro Glu Gln Val Glu Glu Glu Thr Leu Asn Ile
           340          345          350
Leu Gln Leu Val Ser Thr Leu Tyr Gly Thr Phe Gly Leu Glu Tyr His
           355          360          365
Leu Glu Leu Ser Thr Arg Pro Glu Lys Asp Thr Ile Gly Asp Asp Ser
           370          375          380
Leu Trp Glu Leu Ala Thr Asp Ala Leu Asn Arg Ala Leu Val Gln Ser
           385          390          395          400
Gly Thr Pro Phe Ile Val Arg Pro Gly Glu Gly Ala Phe Tyr Gly Pro
           405          410          415
Lys Ile Asp Ile His Val Lys Asp Ala Ile Gln Arg Thr Trp Gln Cys
           420          425          430
Gly Thr Ile Gln Leu Asp Met Phe Leu Pro Glu Arg Phe Glu Leu Glu
           435          440          445
Tyr Thr Thr Ala Gln Gly Thr Lys Ser Val Pro Val Met Leu His Arg
           450          455          460
Ala Leu Phe Gly Ser Ile Glu Arg Phe Leu Gly Ile Leu Ile Glu Asn

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465                      470                      475                      480  
 Phe Lys Gly Arg Phe Pro Leu Trp Leu Ser Pro Glu Gln Val Arg Ile  
                                  485                      490                      495  
 Ile Thr Val Ala Asp Arg His Ile Pro Arg Ala Lys Glu Leu Glu Glu  
                                  500                      505                      510  
 Ala Trp Lys Arg Leu Gly Leu Val Val Thr Leu Asp Asp Ser Ser Glu  
                                  515                      520                      525  
 Ser Val Ser Lys Lys Ile Arg Asn Ala Gln Asn Met Gln Val Asn Tyr  
                                  530                      535                      540  
 Met Ile Thr Leu Gly Asp His Glu Ile Asn Glu Asn Val Leu Ala Val  
 545                      550                      555                      560  
 Arg Thr Arg Asp Asn Arg Val Ile Asn Asp Val Ser Val Glu Arg Phe  
                                  565                      570                      575  
 Leu Asn Thr Ile Leu Glu Glu Lys Asn Ser Leu Ser Leu Thr Ala Leu  
                                  580                      585                      590  
 Leu

&lt;210&gt;862

&lt;211&gt;90

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;862

Leu Thr Cys Met Phe Trp Ala Leu Arg Ile Phe Leu Leu Thr Asp Ser  
   1                                  5                                  10                                  15  
 Leu Glu Ser Ser Lys Val Thr Thr Lys Pro Lys Arg Phe His Ala Ser  
                                   20                                  25                                  30  
 Ser Ser Ser Phe Ala Leu Gly Ile Trp Arg Ser Ala Thr Val Met Ile  
                                   35                                  40                                  45  
 Arg Thr Cys Ser Gly Leu Asn His Lys Gly Asn Leu Pro Leu Lys Phe  
                                   50                                  55                                  60  
 Ser Ile Arg Ile Pro Lys Lys Arg Ser Ile Glu Pro Lys Arg Ala Arg  
                                   65                                  70                                  75                                  80  
 Cys Asn Ile Thr Gly Thr Leu Leu Val Pro  
                                   85                                  90

&lt;210&gt;863

&lt;211&gt;90

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;863

Asn Ala Asn Asn Glu Ser Pro Pro Asn Met Glu Ala Trp Asn Lys Met  
   1                                  5                                  10                                  15  
 Ile Gln Val Thr Cys Asp Gln Lys Asn Tyr Glu Val Leu Glu Gly Thr  
                                   20                                  25                                  30  
 Thr Ala Ala Glu Leu Ala Lys Gln Leu Lys Asn Ser His Gln Phe Ile  
                                   35                                  40                                  45  
 Gly Val Leu Ile Asn Glu Arg Pro Arg Asp Leu Ser Thr His Leu Asn  
                                   50                                  55                                  60  
 Glu Gly Asp Thr Leu Val Phe Leu Thr Ser Glu Asp Pro Glu Asp Glu  
                                   65                                  70                                  75                                  80  
 Lys Phe Phe Phe Ile Leu Leu Pro Ile Phe  
                                   85                                  90

&lt;210&gt;864

&lt;211&gt;310

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;864

Thr Leu Gln Thr Gly Leu His Met Ser Leu Phe Leu Val Phe Leu Thr  
   1                                  5                                  10                                  15  
 Ala Phe Ile Trp Ser Ser Ser Phe Ala Leu Ser Lys Leu Val Met Asn  
                                   20                                  25                                  30  
 Ala Ser Ala Pro Ile Phe Ala Thr Gly Ala Arg Met Val Ile Ala Gly  
                                   35                                  40                                  45  
 Ala Ile Leu Ala Leu Ala Ala Trp Phe Arg Gly Gly Phe Val Gly Ile  
                                   50                                  55                                  60

Ser Lys Lys Ile Phe Leu Tyr Ile Val Leu Leu Ala Leu Thr Gly Phe  
65 70 75 80  
Tyr Leu Thr Asn Ile Phe Glu Phe Ile Gly Leu Gln Ser Leu Ser Ser  
85 90 95  
Ser Lys Thr Cys Phe Ile Tyr Gly Leu Ser Pro Leu Met Ser Ala Leu  
100 105 110  
Phe Ser Tyr Ile Gln Leu Lys Glu Lys Val Thr Leu Lys Lys Val Leu  
115 120 125  
Gly Leu Ser Leu Gly Leu Val Ser Tyr Ile Cys Tyr Leu Thr Phe Gly  
130 135 140  
Gly Gly Gly Asp Asp Ser Gln Pro Trp Thr Trp Gln Ile Gly Leu Pro  
145 150 155 160  
Glu Leu Leu Ile Leu Gly Ala Ala Ser Leu Ala Ser Phe Gly Trp Thr  
165 170 175  
Leu Leu Arg Gln Ile Glu Lys Gln Ser Thr Leu Ser Val Thr Ala Ile  
180 185 190  
Asn Ala Tyr Ala Met Leu Ile Ala Gly Met Leu Ser Ile Met His Ser  
195 200 205  
Ala Val Val Glu Pro Trp Arg Pro Leu Pro Val Gln Asp Ile Ser Gln  
210 215 220  
Phe Leu Tyr Ala Thr Leu Ala Leu Val Val Ile Ser Asn Leu Ile Cys  
225 230 235 240  
Tyr Asn Leu Tyr Ala Lys Leu Leu Arg Lys Tyr Ser Ser Thr Phe Leu  
245 250 255  
Ser Phe Cys Asn Leu Val Met Pro Leu Tyr Ser Gly Phe Tyr Gly Trp  
260 265 270  
Ile Leu Leu Gly Glu Lys Gly Val Ser Leu Gly Leu Val Leu Ala Val  
275 280 285  
Ala Phe Met Val Ala Gly Cys Arg Leu Ile Tyr His Glu Glu Phe Arg  
290 295 300  
Gln Gly Tyr Ile Val Ser  
305 310

&lt;210&gt;865

&lt;211&gt;118

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;865

Lys Ser Leu Gln Arg Tyr Glu Arg Ser Glu Thr Gln Gly Ala Arg Val  
1 5 10 15  
Ala Ser Phe Ala Gly Asn Ala Leu Ser Ser Ser Met Gln Met Ser Gln  
20 25 30  
Leu Met His Gly Leu Thr Ala Ala Val Glu Gly Leu Ser Ala Gly Gln  
35 40 45  
Thr Gly Ile Glu Val Ala His His Gln Arg Leu Ala Gly Gln Ala Glu  
50 55 60  
Ala Gln Ala Glu Val Leu Lys Gln Met Ser Ser Val Tyr Gly Gln Gln  
65 70 75 80  
Ala Gly Gln Ala Gly Gln Leu Gln Glu Gln Ala Met Gln Ser Phe Asn  
85 90 95  
Thr Ala Leu Gln Thr Leu Gln Asn Ile Ala Asp Ser Gln Thr Gln Thr  
100 105 110  
Thr Ser Ala Ile Phe Asn  
115

&lt;210&gt;866

&lt;211&gt;392

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;866

Leu Lys Lys Leu Pro Ser Trp Ala Leu Lys Ser Leu Lys Arg Met Pro  
1 5 10 15  
Gln Ser Ala Glu Pro Ser Trp Arg Ser Ile Lys Pro Ile Ile Phe Lys  
20 25 30  
Gly Ala Cys Ile Ala Met Thr Ser Gly Val Ser Gly Ser Ser Ser Gln  
35 40 45

Asp Pro Thr Leu Ala Ala Gln Leu Ala Gln Ser Ser Gln Lys Ala Gly  
 50 55 60  
 Asn Ala Gln Ser Gly His Asp Thr Lys Asn Val Thr Lys Gln Gly Ala  
 65 70 75 80  
 Gln Ala Glu Val Ala Ala Gly Gly Phe Glu Asp Leu Ile Gln Asp Ala  
 85 90 95  
 Ser Ala Gln Ser Thr Gly Lys Lys Glu Ala Thr Ser Ser Thr Thr Lys  
 100 105 110  
 Ser Ser Lys Gly Glu Lys Ser Glu Lys Ser Gly Lys Ser Lys Ser Ser  
 115 120 125  
 Thr Ser Val Ala Ser Ala Ser Lys Thr Ala Thr Ala Gln Ala Val Gln  
 130 135 140  
 Gly Pro Lys Gly Leu Arg Gln Asn Asn Tyr Asp Ser Pro Ser Leu Pro  
 145 150 155 160  
 Thr Pro Glu Ala Gln Thr Ile Asn Gly Ile Val Leu Lys Lys Gly Met  
 165 170 175  
 Gly Thr Leu Ala Leu Leu Gly Leu Val Met Thr Leu Met Ala Asn Ala  
 180 185 190  
 Ala Gly Glu Ser Trp Lys Ala Ser Phe Gln Ser Gln Asn Gln Ala Ile  
 195 200 205  
 Arg Ser Gln Val Glu Ser Ala Pro Ala Ile Gly Glu Ala Ile Lys Arg  
 210 215 220  
 Gln Ala Asn His Gln Ala Ser Ala Thr Glu Ala Gln Ala Lys Gln Ser  
 225 230 235 240  
 Leu Ile Ser Gly Ile Val Asn Ile Val Gly Phe Thr Val Ser Val Gly  
 245 250 255  
 Ala Gly Ile Phe Ser Ala Ala Lys Gly Ala Thr Ser Ala Leu Lys Ser  
 260 265 270  
 Ala Ser Phe Ala Lys Glu Thr Gly Ala Ser Ala Ala Gly Gly Ala Ala  
 275 280 285  
 Ser Lys Ala Leu Thr Ser Ala Ser Ser Ser Val Gln Gln Thr Met Ala  
 290 295 300  
 Ser Thr Ala Lys Ala Ala Thr Thr Ala Ala Ser Ser Ala Gly Ser Ala  
 305 310 315 320  
 Ala Thr Lys Ala Ala Ala Asn Leu Thr Asp Asp Met Ala Ala Ala Ala  
 325 330 335  
 Ser Lys Met Ala Ser Asp Gly Ala Ser Lys Ala Ser Gly Gly Leu Phe  
 340 345 350  
 Gly Glu Val Leu Asn Lys Pro Asn Trp Ser Glu Lys Val Ser Arg Gly  
 355 360 365  
 Met Asn Val Val Lys Leu Arg Glu Arg Val Leu His His Leu Gln Glu  
 370 375 380  
 Met Leu Phe Leu Pro Leu Cys Lys  
 385 390

&lt;210&gt;867

&lt;211&gt;496

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;867

Asp Thr Asn Met Ser Ile Ser Ser Ser Ser Gly Pro Asp Asn Gln Lys  
 1 5 10 15  
 Asn Ile Met Ser Gln Val Leu Thr Ser Thr Pro Gln Gly Val Pro Gln  
 20 25 30  
 Gln Asp Lys Leu Ser Gly Asn Glu Thr Lys Gln Ile Gln Gln Thr Arg  
 35 40 45  
 Gln Gly Lys Asn Thr Glu Met Glu Ser Asp Ala Thr Ile Ala Gly Ala  
 50 55 60  
 Ser Gly Lys Asp Lys Thr Ser Ser Thr Thr Lys Thr Glu Thr Ala Pro  
 65 70 75 80  
 Gln Gln Gly Val Ala Ala Gly Lys Glu Ser Ser Glu Ser Gln Lys Ala  
 85 90 95  
 Gly Ala Asp Thr Gly Val Ser Gly Ala Ala Ala Thr Thr Ala Ser Asn  
 100 105 110  
 Thr Ala Thr Lys Ile Ala Met Gln Thr Ser Ile Glu Glu Ala Ser Lys

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      115      120      125
Ser Met Glu Ser Thr Leu Glu Ser Leu Gln Ser Leu Ser Ala Ala Gln
      130      135      140
Met Lys Glu Val Glu Ala Val Val Val Ala Ala Leu Ser Gly Lys Ser
      145      150      155      160
Ser Gly Ser Ala Lys Leu Glu Thr Pro Glu Leu Pro Lys Pro Gly Val
      165      170      175
Thr Pro Arg Ser Glu Val Ile Glu Ile Gly Leu Ala Leu Ala Lys Ala
      180      185      190
Ile Gln Thr Leu Gly Glu Ala Thr Lys Ser Ala Leu Ser Asn Tyr Ala
      195      200      205
Ser Thr Gln Ala Gln Ala Asp Gln Thr Asn Lys Leu Gly Leu Glu Lys
      210      215      220
Gln Ala Ile Lys Ile Asp Lys Glu Arg Glu Glu Tyr Gln Glu Met Lys
      225      230      235      240
Ala Ala Glu Gln Lys Ser Lys Asp Leu Glu Gly Thr Met Asp Thr Val
      245      250      255
Asn Thr Val Met Ile Ala Val Ser Val Ala Ile Thr Val Ile Ser Ile
      260      265      270
Val Ala Ala Ile Phe Thr Cys Gly Ala Gly Leu Ala Gly Leu Ala Ala
      275      280      285
Gly Ala Ala Val Gly Ala Ala Ala Gly Gly Ala Ala Gly Ala Ala
      290      295      300
Ala Ala Thr Thr Val Ala Thr Gln Ile Thr Val Gln Ala Val Val Gln
      305      310      315      320
Ala Val Lys Gln Ala Val Ile Thr Ala Val Arg Gln Ala Ile Thr Ala
      325      330      335
Ala Ile Lys Ala Ala Val Lys Ser Gly Ile Lys Ala Phe Ile Lys Thr
      340      345      350
Leu Val Lys Ala Ile Ala Lys Ala Ile Ser Lys Gly Ile Ser Lys Val
      355      360      365
Phe Ala Lys Gly Thr Gln Met Ile Ala Lys Asn Phe Pro Lys Leu Ser
      370      375      380
Lys Val Ile Ser Ser Leu Thr Ser Lys Trp Val Thr Val Gly Val Gly
      385      390      395      400
Val Val Val Ala Ala Pro Ala Leu Gly Lys Gly Ile Met Gln Met Gln
      405      410      415
Leu Ser Glu Met Gln Gln Asn Val Ala Gln Phe Gln Lys Glu Val Gly
      420      425      430
Lys Leu Gln Ala Ala Ala Asp Met Ile Ser Met Phe Thr Gln Phe Trp
      435      440      445
Gln Gln Ala Ser Lys Ile Ala Ser Lys Gln Thr Gly Glu Ser Asn Glu
      450      455      460
Met Thr Gln Lys Ala Thr Lys Leu Gly Ala Gln Ile Leu Lys Ala Tyr
      465      470      475      480
Ala Ala Ile Ser Gly Ala Ile Val Ala Gln His Lys Thr Asn Asn Phe
      485      490      495

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&lt;210&gt;868

&lt;211&gt;123

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;868

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Gly Glu Ile Met Asn Lys Lys Pro Lys Lys Thr Lys Lys Ala Val Gln
  1           5           10           15
Ser Lys Ala Ala Pro Val Lys Arg Val Pro Glu Glu Ser Gln Glu Ala
      20           25           30
Ala Ile Gln Gln Leu Glu Leu Ala Val Ser Asp Leu Tyr Lys Glu Leu
      35           40           45
Pro Leu Ala Gln Thr Phe Ala Ser Leu Thr Asp Lys Asn Gln Ile Asn
      50           55           60
Ser Ile Ile Ala Ala Leu Ser Gly Thr Leu Glu Ser Leu His Leu Glu
      65           70           75           80
Glu Leu Thr Gln Gly Leu Phe Pro Ser Ala Gln Glu Asp Ala Asn Phe
      85           90           95

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Ala Lys Glu Leu Ser Ser Val Val His Gly Leu Lys Asn Leu Thr Thr  
                   100                  105                  110  
 Val Val Asn Lys Gln Met Val Lys Gly Ala Glu  
                   115                  120  
 <210>869  
 <211>210  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>869  
 Lys Asn Ala Asn Arg Leu Ala Glu Leu Ala Ala Gln Lys Lys Ala Lys  
   1                  5                  10                  15  
 Ala Asp Asp Leu Glu Gln Val His Pro Val Pro Thr Glu Glu Ile  
                   20                  25                  30  
 Lys Lys Ala Leu Gly Asn Ile Phe Glu Gly Leu Ser Asn Gly Leu Asp  
                   35                  40                  45  
 Leu Gln Gln Ile Leu Gly Leu Ser Asp Tyr Leu Leu Glu Glu Ile Tyr  
                   50                  55                  60  
 Thr Val Ala Tyr Thr Phe Tyr Ser Gln Gly Lys Tyr Asn Glu Ala Val  
                   65                  70                  75                  80  
 Gly Leu Phe Gln Leu Leu Ala Ala Ala Gln Pro Gln Asn Tyr Lys Tyr  
                   85                  90                  95  
 Met Leu Gly Leu Ser Ser Cys Tyr His Gln Leu His Leu Tyr Asn Glu  
                   100                  105                  110  
 Ala Ala Phe Gly Phe Phe Leu Ala Phe Asp Ala Gln Pro Asp Asn Pro  
                   115                  120                  125  
 Ile Pro Pro Tyr Tyr Ile Ala Asp Ser Leu Leu Lys Leu Gln Gln Pro  
                   130                  135                  140  
 Glu Glu Ser Asn Asn Phe Leu Asp Val Thr Met Asp Ile Cys Gly Asn  
                   145                  150                  155                  160  
 Asn Pro Glu Phe Lys Ile Leu Lys Glu Arg Cys Gln Ile Met Lys Gln  
                   165                  170                  175  
 Ser Ile Glu Lys Gln Met Ala Gly Glu Thr Lys Lys Ala Pro Thr Lys  
                   180                  185                  190  
 Lys Pro Ala Gly Lys Ser Lys Thr Thr Asn Lys Lys Ser Gly Lys  
                   195                  200                  205  
 Lys Arg  
                   210  
 <210>870  
 <211>580  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>870  
 Met Ser Thr Arg Arg Pro Ile Gln Leu Leu Asp Pro Leu Thr Ile Asn  
   1                  5                  10                  15  
 Gln Ile Ala Ala Gly Glu Val Ile Glu Asn Ser Val Ser Val Val Lys  
                   20                  25                  30  
 Glu Leu Ile Glu Asn Ser Leu Asp Ala Gly Ala Asp Glu Ile Glu Ile  
                   35                  40                  45  
 Glu Thr Leu Gly Gly Gly Gln Gly Ala Ile Ile Ile Arg Asp Asn Gly  
                   50                  55                  60  
 Cys Gly Phe Arg Ala Glu Asp Ile Pro Ile Ala Leu Gln Arg His Ala  
                   65                  70                  75                  80  
 Thr Ser Lys Ile Arg Glu Phe Ser Asp Ile Phe Ser Leu Asn Ser Phe  
                   85                  90                  95  
 Gly Phe Arg Gly Glu Ala Leu Pro Ser Ile Ala Ser Ile Ser Lys Met  
                   100                  105                  110  
 Glu Ile Gln Ser Ser Ile Glu Gly Asp Glu Gly Val Arg Thr Val Ile  
                   115                  120                  125  
 His Gly Gly Asp Ile Val Ser Cys Glu Pro Cys Ala Arg Gln Leu Gly  
                   130                  135                  140  
 Thr Thr Val Ile Val Asn Ser Leu Phe Tyr Asn Val Pro Val Arg Arg  
                   145                  150                  155                  160  
 Gly Phe Gln Lys Ser Met Gln Ser Asp Arg Leu Gly Ile Arg Lys Leu  
                   165                  170                  175

Ile Glu Asn Arg Ile Leu Ser Thr Ala Asn Ile Gly Trp Ser Trp Ile  
 180 185 190  
 Ser Glu Gly His His Glu Ile Gln Ile Ala Lys Gln Gln Gly Phe Gln  
 195 200 205  
 Glu Arg Val Ala Tyr Val Met Gly Asp His Phe Met Gln Asp Ala Leu  
 210 215 220  
 Thr Ile Asp Lys Glu Ala Asn Gly Val Arg Ile Val Gly Val Leu Gly  
 225 230 235 240  
 Ser Pro Ser Phe His Arg Pro Thr Arg Gln Gly Gln Lys Ile Phe Ile  
 245 250 255  
 Asn Asp Arg Pro Ile Glu Ser Leu Phe Ile Ser Lys Lys Val Gly Asp  
 260 265 270  
 Ala Tyr Ala Leu Leu Leu Pro Leu His Arg Tyr Pro Val Phe Val Leu  
 275 280 285  
 Lys Leu Tyr Leu Pro Ser Ser Trp Cys Asp Phe Asn Val His Pro Gln  
 290 295 300  
 Lys Ile Glu Ala Arg Ile Leu Lys Glu Glu Leu Val Gly Asp Cys Ile  
 305 310 315 320  
 Lys Glu Ala Ile Val Glu Thr Leu Ala Cys Pro Pro Gly Ile Leu Cys  
 325 330 335  
 Arg Thr His Gln Glu Ile Glu Glu Ser Asp Ser Val Pro Leu Pro Met  
 340 345 350  
 Phe Arg Met Leu Glu Thr Ser Asp Val Gln Glu Glu Glu Ser Val Glu  
 355 360 365  
 Phe Asp Gln Asn Leu Phe Ala Tyr Ser Ser Glu Asp Val Ser Leu Glu  
 370 375 380  
 Lys Gln Glu Tyr Thr Ser Arg Gly Pro Lys Ser Gln Met Asp Trp Ile  
 385 390 395 400  
 Tyr Ser Ser Asp Val Arg Phe Leu Thr Ser Leu Gly Arg Val Val Leu  
 405 410 415  
 Ala Glu Asp Leu Glu Gly Val His Ile Ile Phe Thr Ala Ala Ala Arg  
 420 425 430  
 Lys His Leu Phe Phe Leu Ser Leu Met Gln Glu Asn Ser Arg Met Tyr  
 435 440 445  
 Gln Ser Gln Ala Leu Leu Ile Pro Leu Arg Leu Gln Val Thr Pro Glu  
 450 455 460  
 Glu Ala Phe Phe Phe Ser His His Gly Arg Thr Leu Cys Asp Leu Gly  
 465 470 475 480  
 Ile Glu Ile Ser Gln Val Gly Pro Cys Val Phe Ser Ile Glu Ser Thr  
 485 490 495  
 Pro Thr Val Ile Gly Glu Glu Glu Leu Lys Glu Trp Leu Leu Leu Leu  
 500 505 510  
 Ala Ala Arg Gly Ser Thr Asp Ile Asn Ser Glu Ala Leu Thr Ala Leu  
 515 520 525  
 Met Lys Glu Thr Leu Thr Gln Ala Thr Phe Ser Lys His Gln His Val  
 530 535 540  
 Phe Asp Val Ser Trp Leu Lys Leu Leu Trp Ser Val Gly Lys Pro Glu  
 545 550 555 560  
 Lys Gly Phe Asp Gly Ala Arg Ile Arg Arg Leu Ile Leu Asp Ser Asp  
 565 570 575  
 Phe Met Glu Gly  
 580

&lt;210&gt;871

&lt;211&gt;355

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;871

Met Ser His Asp Arg Ile Leu Arg Ala Gln Arg Ala Leu Ser Glu His  
 1 5 10 15  
 Asn Leu Asp Ala Ile Leu Val Glu Lys Ser Glu Asp Leu Ala Tyr Phe  
 20 25 30  
 Leu His Asp Glu Ala Ile Ala Gly Ile Leu Leu Ile Gly Gln Gln Glu  
 35 40 45  
 Val Met Phe Phe Val Tyr Arg Met Asp Lys Asp Leu Tyr Ser His Ile

50 55 60  
 Gln Arg Val Pro Leu Thr Phe Leu Thr Gln Asp Val Val Ala Asp Leu  
 65 70 75 80  
 Ser Leu Tyr Val Gln Lys Gln Arg Tyr Gln Lys Ile Gly Phe Asp Ser  
 85 90 95  
 Ala Ser Thr Val Tyr His Lys Phe Ala Gln Arg Gln Val Leu Pro Cys  
 100 105 110  
 Leu Trp Glu Pro Leu Glu Cys Phe Thr Glu Lys Ile Arg Ser Ile Lys  
 115 120 125  
 Ser Glu Glu Glu Ile Arg Arg Met Gln Glu Ala Ala Ala Leu Gly Ser  
 130 135 140  
 Ala Gly Tyr Asp Tyr Val Leu Thr Leu Leu Arg Glu Gly Ile Thr Glu  
 145 150 155 160  
 Lys Glu Val Val Arg Gln Leu Arg Ala Phe Trp Ala Glu Ala Gly Ala  
 165 170 175  
 Glu Gly Pro Ser Phe Pro Pro Ile Ile Ala Phe Gly Glu His Ser Ala  
 180 185 190  
 Phe Pro His Ser Ile Pro Thr Asp Arg Pro Leu Lys Lys Gly Asp Ile  
 195 200 205  
 Val Leu Ile Asp Ile Gly Val Leu Leu Asn Gly Tyr Cys Ser Asp Met  
 210 215 220  
 Thr Arg Met Thr Ala Leu Gly Thr Pro His Pro Lys Leu Leu Glu Ser  
 225 230 235 240  
 Tyr Pro Val Val Val Glu Ala Gln Lys Arg Ala Met Ala Leu Cys Lys  
 245 250 255  
 Glu Gly Val Leu Trp Gly Asp Ile Asp Ala Glu Ala Val Arg Val Leu  
 260 265 270  
 Arg Glu His His Leu Asp Thr Tyr Phe Ile His Gly Ile Gly His Gly  
 275 280 285  
 Val Gly Arg His Ile His Glu Tyr Pro Cys Ser Pro Arg Gly Ser Gln  
 290 295 300  
 Val Lys Leu Glu Ser Gly Met Thr Ile Thr Val Glu Pro Gly Val Tyr  
 305 310 315 320  
 Phe Pro Gly Ile Gly Gly Ile Arg Ile Glu Asp Thr Leu Cys Ile Asp  
 325 330 335  
 Lys Asn Lys Asn Phe Ser Leu Thr Ala Arg Pro Val Ile Ser Glu Leu  
 340 345 350  
 Val Cys Leu  
 355

&lt;210&gt;872

&lt;211&gt;465

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;872

Phe Phe Leu Phe Phe Lys Leu Ser Tyr Asn Phe Ile Phe Asn Leu Pro  
 1 5 10 15  
 Leu Thr Met Tyr Gln Leu Leu Ser Ile Gly Tyr Ser Phe Val Ser Phe  
 20 25 30  
 Ile Ala Leu Leu Trp Met Leu Cys Tyr Ser Pro Asn Tyr Val Thr Asp  
 35 40 45  
 Leu Tyr Arg Ile Ser Leu Ser Ala Glu Glu Ser Leu Gly Gly Ile Arg  
 50 55 60  
 Ala Phe Pro Gln Ala Glu Ser Leu Leu Gly Gly Ala Cys Ala Leu Asn  
 65 70 75 80  
 Phe Pro Asp Leu Glu Glu Arg Leu Pro Asp Leu Arg Lys Glu Leu Leu  
 85 90 95  
 Phe Leu Gly Ser Asn Asp Arg Pro Asp Ala Cys Gly Gly Lys Phe Ser  
 100 105 110  
 Leu Gln Leu Ala Ser Ser Lys Glu Cys Tyr Ile Ala Ala Leu Lys Glu  
 115 120 125  
 Arg Val Tyr Leu Asn Val Thr Asn Ser Ser Arg Gly Pro Val Tyr Ser  
 130 135 140  
 Phe Ser Pro Lys Gly Val Pro Thr Glu Leu Trp Ile Glu Cys Phe Ser  
 145 150 155 160

Val Ser Val Asp Gly Arg Val Glu Val Lys Val Arg Leu Gln Gly Leu  
 165 170 175  
 His Lys Glu Leu Ile Ser Lys Pro Arg Asp Cys Glu Thr Leu Phe Leu  
 180 185 190  
 Asn Pro Pro Ala Asn Lys Leu Asp Cys Trp Glu Ile Ala Gly Phe Arg  
 195 200 205  
 Val Asp Ala Ser Phe Pro Val Lys Gln Lys Ile Arg Arg Ile Gly Val  
 210 215 220  
 Asp Lys Phe Leu Leu Met His Gly Gly Ala Glu Tyr Ala Asp Lys Ala  
 225 230 235 240  
 Thr Lys Glu Arg Val Asp Phe Val Ser Ser Asp Glu Glu Asn Tyr Ser  
 245 250 255  
 Arg Tyr Leu Ala Val Gly Asp Val Leu Trp Asp Gly Asn Cys Trp  
 260 265 270  
 Gln Thr Cys Gly Glu Phe Gln Gly Ala Ser Ser Arg Ala Pro Leu Phe  
 275 280 285  
 Glu Val Lys Arg Ile Asp Asp Lys Val Met Ile Ala Asp Leu Trp Asn  
 290 295 300  
 Val Gly Gly Thr Gln Arg Gln Thr Ile Ser Leu Val Lys Gly Val Pro  
 305 310 315 320  
 Ser Pro Ile Glu Ile Asn Glu Val Ile Arg Glu Ile Glu Phe Thr Gly  
 325 330 335  
 Met Arg Ser Trp Ser Lys Pro Ile Val Leu Val Gly Gly Gln Arg Leu  
 340 345 350  
 Ile Leu Ser Pro Asp Asp Trp Ile Leu Arg Thr Ala Lys Gly Trp Glu  
 355 360 365  
 Lys Leu Ser Arg Ala Asp Gln Ile Gln Asp Tyr Val Thr Gly Lys Val  
 370 375 380  
 Thr Gly Pro Leu Leu Val Phe Glu Lys Leu Glu Lys Asp Leu Arg Gly  
 385 390 395 400  
 Phe Val Leu Arg Gly His Met Phe Asn Ala Gln Arg Thr Leu Val Glu  
 405 410 415  
 Thr Ile Ser Leu Pro Leu Lys Gln Gly Phe Glu Pro Ala Val Ala Ser  
 420 425 430  
 Gln Glu Val Ser Ser Asn Thr Arg Ser Ala Gln His Ile Gln Gly Arg  
 435 440 445  
 Pro Ile Val Gly Asp His Arg Trp Phe Phe Ser Val Ile Leu Tyr Cys  
 450 455 460  
 Ile  
 465

&lt;210&gt;873

&lt;211&gt;123

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;873

Phe Ser Ser Ser Glu Glu Thr Lys Ser Thr Arg Ser Phe Val Ala Leu  
 1 5 10 15  
 Ser Ala Tyr Ser Ala Pro Pro Cys Ile Lys Arg Asn Leu Ser Thr Pro  
 20 25 30  
 Ile Arg Arg Ile Phe Cys Phe Thr Gly Lys Leu Ala Ser Thr Leu Asn  
 35 40 45  
 Pro Ala Ile Ser Gln Gln Ser Ser Leu Leu Ala Gly Gly Phe Lys Asn  
 50 55 60  
 Lys Val Ser Gln Ser Arg Gly Phe Glu Ile Asn Ser Leu Cys Lys Pro  
 65 70 75 80  
 Trp Arg Arg Thr Leu Thr Ser Thr Leu Pro Ser Thr Leu Thr Glu Lys  
 85 90 95  
 His Ser Ile His Asn Ser Val Gly Thr Pro Leu Gly Leu Asn Glu Tyr  
 100 105 110  
 Thr Gly Pro Arg Glu Glu Leu Val Thr Phe Lys  
 115 120

&lt;210&gt;874

&lt;211&gt;754

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;874

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Met Val Phe Phe Arg Asn Ser Leu Leu His Leu Val Ala Leu Ser Gly
 1          5          10          15
Met Leu Cys Cys Ser Ser Gly Val Ala Leu Thr Ile Ala Glu Lys Met
          20          25          30
Ala Ser Leu Glu His Ser Gly Arg Gly Ala Asp Asp Tyr Glu Gly Met
          35          40          45
Ala Ser Phe Asn Ala Asn Met Arg Glu Tyr Ser Leu Gln Leu Ser Lys
          50          55          60
Leu Tyr Glu Glu Ala Arg Lys Leu Arg Ala Ser Gly Thr Glu Asp Glu
          65          70          75          80
Ala Leu Trp Lys Asp Leu Ile Arg Arg Ile Gly Glu Val Arg Gly Tyr
          85          90          95
Leu Arg Glu Ile Glu Glu Leu Trp Ala Ala Glu Ile Arg Glu Lys Gly
          100          105          110
Gly Asn Leu Glu Asp Tyr Ala Leu Trp Asn His Pro Glu Thr Thr Ile
          115          120          125
Tyr Asn Leu Val Thr Asp Tyr Gly Thr Glu Asp Ser Ile Tyr Leu Ile
          130          135          140
Pro Gln Glu Ile Gly Ala Ile Lys Ile Ala Thr Leu Ser Lys Phe Val
          145          150          155          160
Val Pro Lys Glu Ser Phe Glu Asp Cys Leu Thr Gln Ile Leu Ser Arg
          165          170          175
Leu Gly Ile Gly Val Arg Gln Val Asn Ser Trp Ile Lys Glu Leu Tyr
          180          185          190
Met Met Arg Lys Glu Gly Cys Ser Val Ala Gly Val Phe Ser Ser Arg
          195          200          205
Lys Asp Leu Glu Ala Leu Pro Glu Thr Ala Tyr Ile Gly Phe Val Leu
          210          215          220
Asn Ser Asn Val Asp Ala His Thr Asn Gln His Val Leu Lys Lys Phe
          225          230          235          240
Ile Asn Pro Glu Thr Thr His Val Asp Val Ile Ala Gly Arg Val Trp
          245          250          255
Ile Phe Gly Ser Ala Gly Glu Val Gly Glu Leu Leu Lys Ile Tyr Asn
          260          265          270
Phe Val Gln Ser Glu Ser Ile Arg Gln Glu Tyr Arg Val Ile Pro Leu
          275          280          285
Thr Lys Ile Asp Pro Gly Glu Met Ile Ser Ile Leu Asn Ala Ala Phe
          290          295          300
Arg Glu Asp Leu Thr Lys Asp Val Ser Glu Glu Ser Leu Gly Leu Arg
          305          310          315          320
Val Val Pro Leu Gln Tyr Gln Gly Arg Ser Leu Phe Leu Ser Gly Thr
          325          330          335
Ala Ala Leu Val Gln Gln Ala Leu Thr Leu Ile Arg Glu Leu Glu Glu
          340          345          350
Gly Ile Glu Asn Pro Thr Asp Lys Thr Val Phe Trp Tyr Asn Val Lys
          355          360          365
His Ser Asp Pro Gln Glu Leu Ala Ala Leu Leu Ser Gln Val His Asp
          370          375          380
Val Phe Ser Gly Glu Asn Lys Ala Ser Val Gly Ala Ala Asp Gly Cys
          385          390          395          400
Gly Ser Gln Leu Asn Ala Ser Ile Gln Ile Asp Thr Thr Val Ser Ser
          405          410          415
Ser Ala Lys Asp Gly Ser Val Lys Tyr Gly Asn Phe Ile Ala Asp Ser
          420          425          430
Lys Thr Gly Thr Leu Ile Met Val Val Glu Lys Glu Val Leu Pro Arg
          435          440          445
Ile Gln Met Leu Leu Lys Lys Leu Asp Val Pro Lys Lys Met Val Arg
          450          455          460
Ile Glu Val Leu Leu Phe Glu Arg Lys Leu Ala His Glu Gln Lys Ser
          465          470          475          480
Gly Leu Asn Leu Leu Arg Leu Gly Glu Glu Val Cys Lys Lys Gly Cys
          485          490          495

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Ser Pro Ser Val Ser Trp Ala Gly Gly Thr Gly Ile Leu Glu Phe Leu  
 500 505 510  
 Phe Lys Gly Ser Thr Gly Ser Ser Ile Val Pro Gly Tyr Asp Leu Ala  
 515 520 525  
 Tyr Gln Phe Leu Met Ala Gln Glu Asp Val Arg Ile Asn Ala Ser Pro  
 530 535 540  
 Ser Val Val Thr Met Asn Gln Thr Pro Ala Arg Ile Ala Val Val Asp  
 545 550 555 560  
 Glu Met Ser Ile Ala Val Ser Ser Asp Lys Asp Lys Ala Gln Tyr Asn  
 565 570 575  
 Arg Ala Gln Tyr Gly Ile Met Ile Lys Met Leu Pro Val Ile Asn Val  
 580 585 590  
 Gly Glu Glu Asp Gly Lys Ser Tyr Ile Thr Leu Glu Thr Asp Ile Thr  
 595 600 605  
 Phe Asp Thr Thr Gly Lys Asn His Asp Asp Arg Pro Asp Val Thr Arg  
 610 615 620  
 Arg Asn Ile Thr Asn Lys Val Arg Ile Ala Asp Gly Glu Thr Val Ile  
 625 630 635 640  
 Ile Gly Gly Leu Arg Cys Lys Gln Met Ser Asp Ser His Asp Gly Ile  
 645 650 655  
 Pro Phe Leu Gly Asp Ile Pro Gly Ile Gly Lys Leu Phe Gly Met Ser  
 660 665 670  
 Ser Thr Ser Asp Ser Leu Thr Glu Met Phe Val Phe Ile Thr Pro Lys  
 675 680 685  
 Ile Leu Glu Asn Pro Val Glu Gln Gln Glu Arg Lys Glu Glu Ala Leu  
 690 695 700  
 Leu Ser Ser Arg Pro Gly Glu Arg Glu Glu Tyr Tyr Gln Ala Leu Ala  
 705 710 715 720  
 Ala Ser Glu Ala Ala Ala Arg Ala Ala His Lys Lys Leu Glu Met Phe  
 725 730 735  
 Pro Ala Ser Gly Val Ser Leu Ser Gln Val Glu Arg Gln Glu Tyr Asp  
 740 745 750  
 Gly Cys

&lt;210&gt;875

&lt;211&gt;453

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;875

Arg Gly Lys Asn Thr Met Ala Ala Ser Ile Leu Ser Gln Glu Leu Leu  
 1 5 10 15  
 Asp Ile Leu Pro Tyr Thr Phe Leu Lys Lys His Cys Leu Leu Pro Ile  
 20 25 30  
 Glu Glu Ser Ser Glu Ala Ile Thr Ile Ala His Ala Thr Ala Thr Ser  
 35 40 45  
 Val Ile Ala Gln Asp Glu Val Lys Leu Leu Ile Lys Lys Pro Val Arg  
 50 55 60  
 Phe Val Leu Lys Glu Glu Ser Glu Ile Leu Gln Arg Leu Gln Gln Leu  
 65 70 75 80  
 Tyr Ser Asn Arg Glu Gly Asn Val Ser Asp Met Leu Leu Thr Met Lys  
 85 90 95  
 Glu Glu Asp Gly Thr Thr Ile Ser Glu Glu Glu Asp Leu Leu Glu Thr  
 100 105 110  
 Thr Asp Thr Ile Pro Val Val Arg Leu Leu Asn Trp Ile Leu Lys Glu  
 115 120 125  
 Ala Ile Glu Glu Arg Ala Ser Asp Ile His Phe Glu Pro Cys Glu Asp  
 130 135 140  
 Ser Met Arg Ile Arg Tyr Arg Ile Asp Gly Val Leu His Asp Arg His  
 145 150 155 160  
 Ser Pro Pro Ser His Leu Arg Ser Ala Leu Thr Thr Arg Leu Lys Val  
 165 170 175  
 Leu Ala Lys Met Asp Ile Ala Glu His Arg Leu Pro Gln Asp Gly Arg  
 180 185 190  
 Ile Lys Ile His Ile Gly Gly Gln Glu Val Asp Met Arg Val Ser Thr

195 200 205  
 Val Pro Val Ile Tyr Gly Glu Arg Val Val Leu Arg Ile Leu Asp Lys  
 210 215 220  
 Arg Asn Val Ile Leu Asp Ile Ala Gly Leu His Met Pro Lys Gly Thr  
 225 230 235 240  
 Glu Ile Leu Phe Lys Asp Thr Ile Thr Ala Pro Glu Gly Ile Leu Leu  
 245 250 255  
 Val Thr Gly Pro Thr Gly Ser Gly Lys Thr Thr Thr Leu Tyr Ser Val  
 260 265 270  
 Leu Gln Glu Leu Lys Gly Pro Leu Thr Asn Ile Met Thr Ile Glu Asp  
 275 280 285  
 Pro Pro Glu Tyr Lys Leu Pro Gly Ile Ala Gln Ile Ala Val Lys Pro  
 290 295 300  
 Lys Ile Gly Leu Thr Phe Ala Arg Gly Leu Arg His Leu Leu Arg Gln  
 305 310 315 320  
 Asp Pro Asp Ile Leu Met Val Gly Glu Ile Arg Asp Gln Glu Thr Ala  
 325 330 335  
 Glu Ile Ala Ile Gln Ala Ala Leu Thr Gly His Leu Val Val Ser Thr  
 340 345 350  
 Leu His Thr Asn Asp Ala Ile Ser Ala Ile Pro Arg Leu Leu Asp Met  
 355 360 365  
 Gly Ile Glu Ser Tyr Leu Leu Ser Ala Thr Leu Val Gly Val Val Ala  
 370 375 380  
 Gln Arg Leu Val Arg Thr Ile Cys Pro Tyr Cys Lys Val Ala Tyr Thr  
 385 390 395 400  
 Pro Glu Asn Gln Glu Lys Ser Phe Leu Ala Ser Leu Gly Lys Asp Thr  
 405 410 415  
 Glu Met Pro Leu Tyr Arg Gly Gln Gly Cys Val His Cys Phe Val Pro  
 420 425 430  
 Asp Ile Lys Glu Asp Arg Glu Phe Thr Asn Phe Tyr Ala Arg Ile His  
 435 440 445  
 Tyr Phe Val Gln Lys  
 450  
 <210>876  
 <211>394  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>876  
 Gly Gly Arg Met Pro Arg Tyr Arg Tyr Thr Tyr Leu Asp Pro Lys Glu  
 1 5 10 15  
 Arg Arg Lys Arg Gly Tyr Leu Glu Ala Leu His Ile Gln Glu Ala Arg  
 20 25 30  
 Glu Lys Leu Ala Gln Glu Asn Ile Gln Val Leu Asp Ile Arg Glu Val  
 35 40 45  
 Ala Leu Arg Arg Met Ser Ile Lys Ser Thr Glu Leu Ile Val Phe Thr  
 50 55 60  
 Lys Gln Leu Leu Leu Leu Leu Arg Ser Gly Leu Pro Leu Tyr Glu Ser  
 65 70 75 80  
 Leu Val Ser Leu Arg Asp Gln Tyr His Glu Gln Lys Met Gly Leu Leu  
 85 90 95  
 Leu Thr Ser Phe Met Glu Thr Leu Arg Ser Gly Gly Ser Leu Ser Gln  
 100 105 110  
 Ala Met Ala Ala His Pro Asn Ile Phe Asp His Phe Tyr Cys Ser Gly  
 115 120 125  
 Val Ala Ala Gly Glu Ser Val Gly Asn Leu Glu Gly Cys Leu Gln Asn  
 130 135 140  
 Ile Ile Val Val Leu Glu Glu Arg Ala Gln Ile Thr Lys Lys Met Val  
 145 150 155 160  
 Gly Ala Leu Ser Tyr Pro Cys Val Leu Leu Val Phe Ser Phe Ala Val  
 165 170 175  
 Met Leu Phe Phe Leu Leu Gly Val Ile Pro Ser Leu Lys Glu Thr Phe  
 180 185 190  
 Glu Asn Met Glu Val Lys Gly Leu Thr Lys Ile Val Phe Gly Val Ser  
 195 200 205

Asp Cys Leu Ser Ala Tyr Arg Tyr Leu Phe Leu Gly Phe Ala Ser Ala  
 210 215 220  
 Leu Ile Thr Val Gly Ile Leu Met Arg His Arg Ile Pro Trp Lys Lys  
 225 230 235 240  
 Ile Leu Glu Lys Leu Phe Ala Leu Pro Gly Thr Lys Lys Phe Val  
 245 250 255  
 Val Lys Val Ala Val Asn Arg Phe Cys Ser Val Ala Ser Ala Ile Leu  
 260 265 270  
 Lys Gly Gly Gly Thr Leu Ile Glu Gly Leu Asp Leu Gly Cys Asp Ala  
 275 280 285  
 Ile Pro Tyr Asp Arg Leu Lys Thr Asp Met Arg Asp Ile Val Gln Ala  
 290 295 300  
 Val Ile Gly Gly Gly Ser Leu Ser Gln Glu Leu Ala Gln Arg Ser Trp  
 305 310 315 320  
 Val Pro Lys Leu Ala Ile Gly Met Ile Ala Leu Gly Glu Glu Ser Gly  
 325 330 335  
 Asp Leu Ala Asp Val Leu Gly Tyr Val Ala His Ile Tyr Asn Glu Asp  
 340 345 350  
 Thr Gln Lys Thr Leu Ala Ser Ile Thr Ser Trp Cys Gln Pro Val Ile  
 355 360 365  
 Leu Ile Phe Leu Gly Gly Leu Ile Gly Val Ile Met Leu Ala Ile Leu  
 370 375 380  
 Ile Pro Leu Thr Ser Asn Ile Gln Thr Leu  
 385 390

&lt;210&gt;877

&lt;211&gt;175

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;877

Gly Tyr Thr Lys Asn Val Gly Phe Asp Asn Val Val Val Ser Thr Arg  
 1 5 10 15  
 Asp Ser Asp Phe Ser Trp Trp Pro Asp Arg Cys Asp His Val Gly Asn  
 20 25 30  
 Ile Asp Pro Thr His Lys Gln Tyr Pro Asn Ile Ile Lys Cys Val Leu  
 35 40 45  
 Arg Gly Val Gly Met Lys Arg Gln Lys Arg Lys Gln Ser Ile Thr Leu  
 50 55 60  
 Ile Glu Met Met Val Val Ile Thr Leu Ile Gly Ile Ile Gly Gly Ala  
 65 70 75 80  
 Leu Ala Phe Asn Met Arg Gly Ser Ile His Lys Gly Lys Val Phe Gln  
 85 90 95  
 Ser Glu Gln Asn Cys Ala Lys Val Tyr Asp Ile Leu Met Met Glu Tyr  
 100 105 110  
 Ala Thr Gly Gly Ser Ser Leu Lys Glu Ile Ile Ala His Lys Glu Thr  
 115 120 125  
 Val Val Glu Glu Ala Ser Trp Cys Lys Glu Gly Arg Lys Leu Leu Lys  
 130 135 140  
 Asp Ala Trp Gly Glu Asp Leu Ile Val Gln Leu Asn Asp Lys Gly Asp  
 145 150 155 160  
 Asp Leu Val Ile Phe Ser Lys Arg Val Gln Ser Ser Asn Lys Lys  
 165 170 175

&lt;210&gt;878

&lt;211&gt;149

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;878

Leu Leu Ser Asn Ile Met Gly Ser Arg Arg Lys Leu Lys Arg Ser Phe  
 1 5 10 15  
 Leu Leu Ile Glu Val Leu Met Ala Leu Ser Leu Val Cys Ala Val Leu  
 20 25 30  
 Leu Pro Cys Ile Arg Phe Tyr Tyr Ala Ile His Arg Ser Phe Glu Glu  
 35 40 45  
 Asp Ile Phe Asn Leu Gln Leu Pro Ala Leu Ile Asp His Cys Phe Leu  
 50 55 60



Ser Val Glu Glu Lys Met Arg Gln Gln Met Ala Glu Gly Thr Val Leu  
 65 70 75 80  
 Thr Ser Gly Lys Gly Gln Thr Val Ser Leu Ala Tyr Thr Ser Gln Gly  
 85 90 95  
 Ile Gly Tyr Arg Ile Pro Tyr Gly Tyr Asn Val Asp Ile Arg Gln Glu  
 100 105 110  
 Val Arg Gly Asp Asn Leu Lys Met Lys Val Cys Leu Ala Asp Val Val  
 115 120 125  
 Val Glu Leu Phe Pro Asp Gln Lys Gln Ala Val Ser Val Gln Arg Cys  
 130 135 140  
 Leu Cys Val Thr Leu  
 145

&lt;210&gt;879

&lt;211&gt;206

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;879

Asp Glu Ser Leu Pro Cys Arg Cys Cys Cys Gly Thr Phe Pro Arg Ser  
 1 5 10 15  
 Glu Thr Ser Ser Ile Arg Thr Glu Met Pro Met Cys Asn Ser Ile Ala  
 20 25 30  
 Met Lys Lys Gln Lys Arg Gly Phe Val Leu Met Glu Leu Leu Met Ser  
 35 40 45  
 Phe Thr Leu Ile Ala Leu Leu Leu Gly Thr Leu Gly Phe Trp Tyr Arg  
 50 55 60  
 Lys Ile Tyr Thr Val Gln Lys Gln Lys Glu Arg Ile Tyr Asn Phe Tyr  
 65 70 75 80  
 Ile Glu Glu Ser Arg Ala Tyr Lys Gln Leu Arg Thr Leu Phe Ser Met  
 85 90 95  
 Ser Leu Ser Ser Ser Tyr Glu Glu Pro Gly Ser Leu Phe Ser Leu Ile  
 100 105 110  
 Phe Asp Arg Gly Val Tyr Arg Asp Pro Lys Leu Ala Gly Ala Val Arg  
 115 120 125  
 Ala Ser Leu His His Asp Thr Lys Asp Gln Arg Leu Glu Leu Arg Ile  
 130 135 140  
 Cys Asn Ile Lys Asp Gln Ser Tyr Phe Glu Thr Gln Arg Leu Leu Ser  
 145 150 155 160  
 His Val Thr His Val Val Leu Ser Phe Gln Arg Asn Pro Asp Pro Glu  
 165 170 175  
 Lys Leu Pro Glu Thr Ile Ala Leu Thr Ile Thr Arg Glu Pro Lys Ala  
 180 185 190  
 Tyr Pro Pro Arg Thr Leu Thr Tyr Gln Phe Ala Val Gly Lys  
 195 200 205

&lt;210&gt;880

&lt;211&gt;344

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;880

His Thr Asn Leu Arg Leu Gly Asn Lys Pro Met Gln Pro Phe Ile Phe  
 1 5 10 15  
 Thr Leu Leu Cys Leu Thr Ser Leu Val Ser Leu Val Ala Phe Asp Ala  
 20 25 30  
 Ala Asn Ala Arg Lys Arg Cys Ala Cys Ala Gln Thr Ile Glu Arg Gly  
 35 40 45  
 Glu Asn Phe Phe Ser Ile Lys Arg Ser Ala Cys Ala Glu Ile Glu Tyr  
 50 55 60  
 Gln Glu Lys Ser Arg His Ala Ser Ala Ile Glu Arg Ile Ser Lys Asp  
 65 70 75 80  
 Lys Gly Lys Val Thr Pro Lys Gln Ile Ala Lys Val Ala Thr Lys Lys  
 85 90 95  
 Lys Gln Arg Tyr Arg Leu Leu Gln Val Pro Phe Ser Arg Pro Pro Asn  
 100 105 110  
 Asn Ser Arg Tyr Asn Leu Tyr Ala Leu Leu Ser Glu Pro Pro Glu Cys  
 115 120 125

Tyr Ser Asp Thr Ala Ser Trp Tyr Ala Ile Phe Ile Arg Leu Leu Arg  
 130 135 140  
 Arg Ala Tyr Val Asp Thr Gly Asn Val Pro Pro Gly Ser Glu Tyr Ala  
 145 150 155 160  
 Ile Ala Asn Ala Leu Ile Ser Asn Lys Gln Glu Ile Leu Glu Arg Gly  
 165 170 175  
 Ala Gln Leu Gly Pro Asp Val Ile Glu Thr Leu Thr Leu Pro Glu Glu  
 180 185 190  
 Gln Ala Glu Ile Phe Tyr Lys Met Leu Lys Gly Ser Ser Asn Ser Gln  
 195 200 205  
 Ser Leu Leu Asn Phe Leu His Tyr Glu Glu Lys Ser Leu Gly His Cys  
 210 215 220  
 Lys Leu Asn Leu Ile Phe Met Asp Pro Leu Leu Glu Ala Val Leu  
 225 230 235 240  
 Asp His Pro Asp Ala Tyr Arg Glu Thr Ser Leu Leu Arg Asp Gly Ile  
 245 250 255  
 Trp Glu Ala Val Lys Arg Gln Glu His Ala Ile Gln Glu His Gly Gln  
 260 265 270  
 Ala Ala Ala Leu Glu Leu Phe Lys Thr Arg Thr Asp Phe Arg Leu Glu  
 275 280 285  
 Leu Arg Asp Lys Met Gln Leu Leu Ser Arg Tyr Asp Leu Leu Pro  
 290 295 300  
 Leu Leu Asn Lys Lys Met Phe Asp Tyr Thr Leu Gly Ser Ala Gly Asp  
 305 310 315 320  
 Tyr Leu Phe Leu Val Asp Pro Asp Thr Lys Ala Ile Ser Arg Cys Arg  
 325 330 335  
 Cys Pro Ser Lys Ser Ile Lys Leu  
 340

&lt;210&gt;881

&lt;211&gt;95

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;881

Phe Phe Leu Ile Ile Val Leu Ile Ser Thr Ile Lys Asn Ile Ser Ile  
 1 5 10 15  
 Gly Arg Thr Met Ala Asp Glu Thr Pro Lys Glu Asn Ser Ser Lys Glu  
 20 25 30  
 Ser Ser Ser Gln Phe Asp Ser Leu Lys Arg Lys Val Lys Asp Leu His  
 35 40 45  
 Ser Asn Pro Lys Val Gly Lys Trp Lys Lys Phe Leu Ser His Arg Ala  
 50 55 60  
 Cys Glu Xaa Ser Val Val Ala Trp Cys Trp Leu Val Ser Ser Leu Ile  
 65 70 75 80  
 Leu Phe His Gly Leu Glu Asp Cys Leu Leu Val Val Trp Ser  
 85 90 95

&lt;210&gt;882

&lt;211&gt;125

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;882

Ser Arg Glu Met Glu Glu Val Ser Phe Ser Ser Ser Leu Arg Xaa Ile  
 1 5 10 15  
 Gly Gly Cys Leu Val Leu Val Gly Ile Ala Asp Phe Ile Ser Trp  
 20 25 30  
 Ala Gly Gly Leu Phe Ile Ala Cys Gly Val Val Leu Gly Phe His Val  
 35 40 45  
 Glu Ile Arg Lys Met Leu Ser Asn Leu Gln Ser Tyr Ser Ile Ala Asn  
 50 55 60  
 Gly Pro Ile Lys Asn Ala Ile Leu Cys Gly Leu Ile Leu Phe Phe Val  
 65 70 75 80  
 Leu Asn Ile Pro Ser Phe Ala Val Ser Phe Ile Val Leu Cys Val Ile  
 85 90 95  
 Leu Ser Phe Ile Thr Thr Ala Pro Ser Cys Ser Thr Cys Ser Lys Asp  
 100 105 110

His Cys Asp Lys His Gln Asp Thr Ser Asn Lys Pro Ser  
 115 120 125

&lt;210&gt;883

&lt;211&gt;305

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;883

Leu Gln Val Arg Phe Ser Lys Thr Ser Ile Asn Gly Asn Lys Glu Leu  
 1 5 10 15  
 Met Gly Ile Ser Leu Pro Glu Leu Phe Ser Asn Leu Gly Ser Ala Tyr  
 20 25 30  
 Leu Asp Tyr Ile Phe Gln His Pro Ala Tyr Val Trp Ser Val Phe  
 35 40 45  
 Leu Leu Leu Leu Ala Arg Leu Leu Pro Ile Phe Ala Val Ala Pro Phe  
 50 55 60  
 Leu Gly Ala Lys Leu Phe Pro Ser Pro Ile Lys Ile Gly Ile Ser Leu  
 65 70 75 80  
 Ser Trp Leu Ala Ile Ile Phe Pro Lys Val Leu Ala Asp Thr Gln Ile  
 85 90 95  
 Thr Asn Tyr Met Asp Asn Asn Leu Phe Tyr Val Leu Leu Val Lys Glu  
 100 105 110  
 Met Ile Ile Gly Ile Val Ile Gly Phe Val Leu Ala Phe Pro Phe Tyr  
 115 120 125  
 Ala Ala Gln Ser Ala Gly Ser Phe Ile Thr Asn Gln Gln Gly Ile Gln  
 130 135 140  
 Gly Leu Glu Gly Ala Thr Ser Leu Ile Ser Ile Glu Gln Thr Ser Pro  
 145 150 155 160  
 His Gly Ile Leu Tyr His Tyr Phe Val Thr Ile Ile Phe Trp Leu Val  
 165 170 175  
 Gly Gly His Arg Ile Val Ile Ser Leu Leu Leu Gln Thr Leu Glu Val  
 180 185 190  
 Ile Pro Ile His Ser Phe Phe Pro Ala Glu Met Met Ser Leu Ser Ala  
 195 200 205  
 Pro Ile Trp Ile Thr Met Ile Lys Met Cys Gln Leu Cys Leu Val Met  
 210 215 220  
 Thr Ile Gln Leu Ser Ala Pro Ala Ala Leu Ala Met Leu Met Ser Asp  
 225 230 235 240  
 Leu Phe Leu Gly Ile Ile Asn Arg Met Ala Pro Gln Val Gln Val Ile  
 245 250 255  
 Tyr Leu Leu Ser Ala Leu Lys Ala Phe Met Gly Leu Leu Phe Leu Thr  
 260 265 270  
 Leu Ala Trp Trp Phe Ile Ile Lys Gln Ile Asp Tyr Phe Thr Leu Ala  
 275 280 285  
 Trp Phe Lys Glu Val Pro Ile Met Leu Leu Gly Ser Asn Pro Gln Val  
 290 295 300

Leu

305

&lt;210&gt;884

&lt;211&gt;95

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;884

Val Leu Ala Phe Phe Ala Thr Ser Phe Lys Ser Val Leu Phe Glu Tyr  
 1 5 10 15  
 Ser Tyr Gln Ser Leu Leu Leu Ile Leu Ile Val Ser Ala Pro Pro Ile  
 20 25 30  
 Ile Leu Ala Ser Ile Val Gly Ile Met Val Ala Ile Phe Gln Ala Ala  
 35 40 45  
 Thr Gln Ile Gln Glu Gln Thr Phe Ala Phe Ala Val Lys Leu Val Val  
 50 55 60  
 Ile Phe Gly Thr Leu Met Ile Ser Gly Gly Trp Leu Ser Asn Met Ile  
 65 70 75 80  
 Leu Arg Phe Ala Gly Gln Ile Phe Gln Asn Phe Tyr Lys Trp Lys  
 85 90 95

&lt;210&gt;885

&lt;211&gt;117

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;885

Arg Thr Phe Ala Leu Phe Leu Asn Ser Gln His Ser Lys Ser Thr Asn  
 1 5 10 15  
 Ser Lys Leu Leu Gln Asp Leu Thr Glu Asn Leu Pro Ser Glu Ile Arg  
 20 25 30  
 Ala His Leu Thr Ala Ser Asp Phe Val Ile Ile Ile Pro Ala Phe Ile  
 35 40 45  
 Met Gly Gln Ile Lys Asn Ala Phe Glu Ile Gly Val Leu Ile Tyr Leu  
 50 55 60  
 Pro Phe Phe Val Ile Asp Leu Val Thr Ala Asn Val Leu Val Ala Met  
 65 70 75 80  
 Gln Met Met Met Leu Ser Pro Leu Ser Ile Ser Leu Pro Leu Lys Leu  
 85 90 95  
 Leu Leu Ile Val Met Val Asp Gly Trp Thr Leu Leu Leu Gln Gly Leu  
 100 105 110  
 Met Ile Ser Phe Lys  
 115

&lt;210&gt;886

&lt;211&gt;257

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;886

Thr Ser His Leu Arg Leu His His Pro Arg Ile Leu Leu Leu Tyr Leu  
 1 5 10 15  
 Met Ile Arg Ile Arg Lys Asn Lys Gly Ile His Tyr Tyr Ala Ile His  
 20 25 30  
 Phe Ser Ile Phe Pro Leu Phe Phe Tyr Ala Glu Arg Leu Met Leu Phe  
 35 40 45  
 Ser Asp Ala Ser Leu Tyr Glu Asn Ser Cys Pro Ser Arg Cys Gln Pro  
 50 55 60  
 Thr Pro Pro Pro Ser Asn Ser Asn Pro Leu Asn Val Val Gln Gln Pro  
 65 70 75 80  
 Val Ala Ala Ser Ser Val Pro Ser Tyr Met Pro Pro Leu Asn Ala Asp  
 85 90 95  
 Asp Val Leu Pro Arg Asp His Leu Ser Asp Gly Ser Phe Ser Asp Thr  
 100 105 110  
 Tyr Pro Asp Ile Thr Thr Gln Ala Ile Ile Leu Ile Phe Leu Ala Leu  
 115 120 125  
 Ser Pro Phe Leu Val Met Leu Leu Thr Ser Tyr Leu Lys Ile Ile Ile  
 130 135 140  
 Thr Leu Val Leu Leu Arg Asn Ala Leu Gly Val Gln Gln Thr Pro Pro  
 145 150 155 160  
 Ser Gln Val Leu Asn Gly Ile Ala Leu Ile Leu Ser Ile Tyr Val Met  
 165 170 175  
 Phe Pro Thr Gly Val Ala Met Tyr Lys Asp Ala Arg Lys Glu Ile Glu  
 180 185 190  
 Ala Asn Thr Ile Pro Gln Ser Leu Phe Thr Ala Glu Gly Ala Glu Thr  
 195 200 205  
 Val Phe Val Ala Leu Asn Lys Ser Lys Glu Pro Leu Arg Ser Phe Leu  
 210 215 220  
 Ile Arg Asn Thr Pro Lys Ala Gln Ile Gln Ser Phe Tyr Lys Ile Ser  
 225 230 235 240  
 Gln Lys Thr Phe Leu Arg Lys Phe Glu Arg Thr Ser Leu Pro Pro Thr  
 245 250 255  
 Leu

&lt;210&gt;887

&lt;211&gt;108

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;887

Lys Ser Ser His Lys Ile Asn Ile Ser Leu Leu Ser Val Asn Pro Lys  
 1 5 10 15  
 Asp Leu Pro Leu Val Glu Lys Ser Arg Pro Glu Leu Lys Asn Ile Val  
 20 25 30  
 Glu Tyr Ala Asp Ser Leu Ile Leu Thr Ala Lys Pro Asp Val Thr Pro  
 35 40 45  
 Gly Gly Cys Ile Ile Glu Thr Glu Ala Gly Ile Ile Asn Ala Gln Leu  
 50 55 60  
 Asp Val Gln Leu Asp Ala Leu Glu Lys Ala Phe Ser Thr Ile Leu Lys  
 65 70 75 80  
 Ala Lys Asn Pro Val Asp Glu Pro Ser Glu Thr Ser Ser Ser Thr Asp  
 85 90 95  
 Ser Ser Ser Leu Ser Asn Asp Gln Asp Lys Lys Glu  
 100 105

&lt;210&gt;888

&lt;211&gt;140

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;888

Phe Leu Lys Met Met Met Ser Pro Gln Ile Arg Arg Phe Tyr Leu Leu  
 1 5 10 15  
 Lys Leu Ser Ser Ala Phe Leu Asp Ala Lys Glu Leu Leu Glu Lys Thr  
 20 25 30  
 Lys Ala Asp Ser Glu Ala Tyr Val Ala Glu Thr Glu Gln Lys Cys Ala  
 35 40 45  
 Gln Ile Arg Gln Glu Ala Lys Asp Gln Gly Phe Lys Glu Gly Ser Glu  
 50 55 60  
 Ser Trp Ser Lys Gln Ile Ala Phe Leu Glu Glu Glu Thr Lys Asn Leu  
 65 70 75 80  
 Arg Ile Arg Val Arg Glu Ala Leu Val Pro Leu Ala Ile Ala Ser Val  
 85 90 95  
 Arg Lys Ile Ile Gly Lys Glu Leu Glu Leu His Pro Glu Thr Ile Val  
 100 105 110  
 Ser Ile Ile Ser Gln Ala Leu Lys Glu Leu Thr Gln Asn Lys His Ile  
 115 120 125  
 Ile Thr Leu Cys Gln Ser Gln Arg Phe Thr Ser Cys  
 130 135 140

&lt;210&gt;889

&lt;211&gt;280

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;889

Gly Cys Leu Val Thr Ala Asn Thr Phe Gly Thr Leu Asp Ile Leu Met  
 1 5 10 15  
 Lys His Ser Lys Glu Asp Asp Leu Ser Arg Phe Leu Pro Lys Asn Leu  
 20 25 30  
 Leu Val Glu Ser Pro His Pro Glu Glu Ile Pro Leu Lys Ser Leu Ser  
 35 40 45  
 Phe Thr Met Ser Trp Leu Pro Thr Ile His Pro Ser Trp Ile Thr Ile  
 50 55 60  
 Ala Met Lys Glu Phe Pro Glu Ile Gln Gly Gln Leu Leu Ala Trp  
 65 70 75 80  
 Leu Pro Glu Pro Leu Val Gln Glu Ile Leu Pro Leu Leu Pro Gly Ile  
 85 90 95  
 Ser Ile Ala Pro His Arg Cys Ala Pro Phe Gly Ala Phe Tyr Leu Leu  
 100 105 110  
 Asp Met Leu Ser Lys Lys Ile Arg Pro Cys Gly Ile Thr Glu Glu Ile  
 115 120 125  
 Phe Leu Pro Ala Ser Ser Ala Asn Ala Ile Leu Tyr Tyr Thr Gly Pro  
 130 135 140  
 Val Lys Ile Ala Leu Ile Asn Cys Leu Gly Leu Tyr Ser Ile Ala Lys  
 145 150 155 160  
 Glu Leu Lys His Ile Leu Asp Lys Val Val Ile Glu Arg Val Lys Asn

165 170 175  
 Ala Leu Ser Pro Thr Glu Lys Leu Phe Leu Thr Tyr Cys Gln Ser His  
 180 185 190  
 Pro Met Lys His Leu Glu Thr Thr Asn Phe Leu Ser Ser Trp Thr Thr  
 195 200 205  
 Asp Ala Glu Leu Arg Gln Phe Val His Lys Gln Gly Leu Glu Phe Leu  
 210 215 220  
 Gly Lys Ala Leu Thr Lys Glu Asn Ala Ser Phe Leu Trp Tyr Phe Leu  
 225 230 235 240  
 Arg Arg Leu Asp Val Gly Arg Ala Tyr Ile Val Glu Gln Thr Leu Lys  
 245 250 255  
 Thr Trp Tyr Asp His Pro Tyr Val Asp Tyr Phe Lys Ser Arg Leu Glu  
 260 265 270  
 Gln Cys Met Lys Val Leu Val Lys  
 275 280

&lt;210&gt;890

&lt;211&gt;155

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;890

Ala Pro Tyr Cys Lys Cys Cys Ser Arg Thr Cys Ala Arg Glu Arg Leu  
 1 5 10 15  
 Cys Ser Glu Arg Ser Arg Xaa Tyr Ser Asp Ile Thr Ile Asn Gly Pro  
 20 25 30  
 Trp Gly Leu Thr Glu Glu Ile Asp Tyr Val Ser Val Trp Gly Ile Ile  
 35 40 45  
 Leu Ala Lys Ser Ser Leu Thr Lys Phe Arg Leu Ile Phe Tyr Val Leu  
 50 55 60  
 Ile Leu Ile Leu Phe Val Ile Ser Cys Gly Leu Leu Trp Val Ile Trp  
 65 70 75 80  
 Lys Thr His Thr Leu Ile Met Thr Met Gly Gly Thr Lys Gly Phe Phe  
 85 90 95  
 Asn Pro Thr Pro Tyr Thr Lys Asn Ala Leu Glu Ala Lys Lys Ala Glu  
 100 105 110  
 Gly Ala Ala Ala Asp Lys Glu Lys Lys Glu Asp Ala Asp Ser Gln Gly  
 115 120 125  
 Glu Ser Lys Asn Ala Glu Thr Ser Asp Lys Asp Ser Ser Asp Lys Asp  
 130 135 140  
 Ala Pro Glu Gly Ser Asn Glu Ile Glu Gly Ala  
 145 150 155

&lt;210&gt;891

&lt;211&gt;214

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;891

Met Val Arg Arg Ser Ile Ser Phe Cys Leu Phe Phe Leu Met Thr Leu  
 1 5 10 15  
 Leu Cys Cys Thr Ser Cys Asn Ser Arg Ser Leu Ile Val His Gly Leu  
 20 25 30  
 Pro Gly Arg Glu Ala Asn Glu Ile Val Val Leu Leu Val Ser Lys Gly  
 35 40 45  
 Val Ala Ala Gln Lys Leu Pro Gln Ala Ala Ala Ala Thr Ala Gly Ala  
 50 55 60  
 Ala Thr Glu Gln Met Trp Asp Ile Ala Val Pro Ser Ala Gln Ile Thr  
 65 70 75 80  
 Glu Ala Leu Ala Ile Leu Asn Gln Ala Gly Leu Pro Arg Met Lys Gly  
 85 90 95  
 Thr Ser Leu Leu Asp Leu Phe Ala Lys Gln Gly Leu Val Pro Ser Glu  
 100 105 110  
 Leu Gln Glu Lys Ile Arg Tyr Gln Glu Gly Leu Ser Glu Gln Met Ala  
 115 120 125  
 Ser Thr Ile Arg Lys Met Asp Gly Val Val Asp Ala Ser Val Gln Ile  
 130 135 140  
 Ser Phe Thr Thr Glu Asn Glu Asp Asn Leu Pro Leu Thr Ala Ser Val

145 150 155 160  
 Tyr Ile Lys His Arg Gly Val Leu Asp Asn Pro Asn Ser Ile Met Val  
 165 170 175  
 Ser Lys Ile Lys Arg Leu Ile Ala Ser Ala Val Pro Gly Leu Val Pro  
 180 185 190  
 Glu Asn Val Ser Val Val Ser Asp Arg Ala Xaa Ile Val Ile Leu Gln  
 195 200 205  
 Leu Met Val Leu Gly Asp  
 210  
 <210>892  
 <211>224  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>892  
 Val Leu Phe Leu Ala Tyr Lys Met Ala Gly Leu Gln Ile Ile Ala Thr  
 1 5 10 15  
 Arg Ile Leu Asp Ser Phe Leu Leu Pro Cys Phe Glu Val Glu Ala Gln  
 20 25 30  
 Thr Phe Pro Gln Val Phe Ser Lys Val Val Val Tyr Lys Tyr Lys Ser  
 35 40 45  
 Ser Arg Ile Leu Leu Ile Ala Leu Leu Tyr Asn Ile Thr Leu Val Leu  
 50 55 60  
 Gly Leu Ile Phe Ile His Lys Lys Tyr Leu Gly Gln Lys Gly Arg Val  
 65 70 75 80  
 Ile Leu Lys Ile Tyr Gln Asn Glu Glu Glu Phe Phe Arg Ala Thr Glu  
 85 90 95  
 Arg Phe Pro Ser Ile Gly Ala Gly Tyr Leu Arg Val Arg Asn Lys Asn  
 100 105 110  
 Ser Val Leu Phe Pro Phe Glu Asp Leu Met Leu Val Cys Pro Ser Val  
 115 120 125  
 Pro Lys Asp Phe Pro Leu Ser Ala Phe Lys Val Thr Thr Lys Leu Ile  
 130 135 140  
 Tyr Trp Ser Val Leu Glu Ser Ile Pro Val Val Gly Ala Phe Phe Phe  
 145 150 155 160  
 Ser Ile Gly Arg Leu Phe Ala Met Trp Cys Ile Glu Asp Phe Pro Gly  
 165 170 175  
 Ser Ile Phe Ser Arg Ile Tyr His Thr Thr Val Gly Val Leu Gly Ile  
 180 185 190  
 Leu Gly Leu Gly Ile Ile Met Phe Ile Leu Arg Ile Ile Phe Thr Leu  
 195 200 205  
 Leu Thr Leu Pro Phe Trp Leu Ile Ser Cys Leu Lys Ser Ser Ala Ala  
 210 215 220  
 <210>893  
 <211>319  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>893  
 Val Met Lys Cys Arg Pro Thr Leu Asn Thr Asp Gln Pro Arg Val Arg  
 1 5 10 15  
 Lys Lys Leu Pro Glu Arg Phe Pro Lys Trp Leu Gln Arg Pro Leu Pro  
 20 25 30  
 Gln Gly Ser Ala Phe His Ala Thr Asp Ala Thr Ile Lys Arg Ser Gly  
 35 40 45  
 Met Pro Thr Val Cys Glu Glu Ala Leu Cys Pro Asn Arg Ala Glu Cys  
 50 55 60  
 Trp Ser Arg Lys Thr Ala Thr Tyr Leu Ala Leu Gly Asp Val Cys Thr  
 65 70 75 80  
 Arg Ser Cys Gly Phe Cys Asn Ile Gly His Ser Lys Thr Pro Pro Ala  
 85 90 95  
 Leu Asp Pro Thr Glu Pro Glu Arg Ile Ala Leu Ser Ala Lys Glu Leu  
 100 105 110  
 Gly Leu Lys His Val Val Ile Thr Met Val Ala Arg Asp Asp Leu Glu  
 115 120 125  
 Asp Gly Gly Ala Gln Gly Leu Val Asp Ile Ile Gln Lys Leu Arg Glu

130 135 140  
 Glu Leu Pro Gln Ala Thr Thr Glu Val Leu Ala Ser Asp Phe Gln Gly  
 145 150 155 160  
 Asn Val Ser Ala Leu His Thr Leu Leu Asp Ser Gly Ile Thr Ile Tyr  
 165 170 175  
 Asn His Asn Val Glu Thr Val Ala Arg Leu Ser Pro Leu Val Arg His  
 180 185 190  
 Lys Ala Thr Tyr Ala Arg Ser Met Phe Met Leu Glu Gln Ala Ala Asn  
 195 200 205  
 Tyr Leu Pro Asp Leu Lys Ile Lys Ser Gly Ile Met Val Gly Leu Gly  
 210 215 220  
 Glu Met Glu Gly Glu Val Lys Gln Thr Leu Gln Asp Leu Ala Ser Ile  
 225 230 235 240  
 Gly Val Arg Ile Val Thr Ile Gly Gln Tyr Leu Arg Pro Ser Arg Lys  
 245 250 255  
 His Leu Gln Val Lys Ser Tyr Val Thr Pro Glu Thr Phe Asp Tyr Tyr  
 260 265 270  
 Arg Arg Val Gly Glu Ala Met Gly Leu Phe Val Tyr Ala Gly Pro Phe  
 275 280 285  
 Val Arg Ser Ser Phe Asn Ala Asp Met Ile Leu Ala Ser Val Gln Asp  
 290 295 300  
 Lys Ala Ser Val Asn Lys His Ser Thr Ile His Leu Ile Glu Ser  
 305 310 315

&lt;210&gt;894

&lt;211&gt;397

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;894

Ala Cys Gly Glu Phe Gly Ile His Val Asp Gly Tyr Thr Ile Asp Tyr  
 1 5 10 15  
 Pro Ala Met Ala Lys Arg Lys Asn Thr Val Val Gln Gly Ile Arg Gln  
 20 25 30  
 Gly Leu Glu Gly Leu Ile Arg Ser Asn Lys Ile Thr Val Leu Lys Gly  
 35 40 45  
 Thr Gly Ser Leu Val Ser Ser Thr Glu Val Lys Val Ile Gly Gln Asp  
 50 55 60  
 Thr Thr Ile Ile Lys Ala Asn His Ile Ile Leu Ala Thr Gly Ser Glu  
 65 70 75 80  
 Pro Arg Pro Phe Pro Gly Val Pro Phe Ser Ser Arg Ile Leu Ser Ser  
 85 90 95  
 Thr Gly Ile Leu Glu Leu Glu Val Leu Pro Lys Lys Leu Ala Ile Ile  
 100 105 110  
 Gly Gly Gly Val Ile Gly Cys Glu Phe Ala Ser Leu Phe His Thr Leu  
 115 120 125  
 Gly Val Glu Ile Thr Val Ile Glu Ala Leu Asp His Ile Leu Ala Val  
 130 135 140  
 Asn Asn Lys Glu Val Ser Gln Thr Val Thr Asn Lys Phe Thr Lys Gln  
 145 150 155 160  
 Gly Ile Arg Ile Leu Thr Lys Ala Ser Ile Ser Ala Ile Glu Glu Ser  
 165 170 175  
 Gln Asn Gln Val Arg Ile Thr Val Asn Asp Gln Val Glu Glu Phe Asp  
 180 185 190  
 Tyr Val Leu Val Ala Ile Gly Arg Gln Phe Asn Thr Ala Ser Ile Gly  
 195 200 205  
 Leu Asp Asn Ala Gly Val Ile Arg Asp Asp Arg Gly Val Ile Pro Val  
 210 215 220  
 Asp Glu Thr Met Arg Thr Asn Val Pro Asn Ile Tyr Ala Ile Gly Asp  
 225 230 235 240  
 Ile Thr Gly Lys Trp Leu Leu Ala His Val Ala Ser His Gln Gly Val  
 245 250 255  
 Ile Ala Ala Lys Asn Ile Ser Gly His His Glu Val Met Asp Tyr Ser  
 260 265 270  
 Ala Ile Pro Ser Val Ile Phe Thr His Pro Glu Ile Ala Met Val Gly  
 275 280 285



Leu Ser Leu Gln Glu Ala Glu Gln Gln Asn Leu Pro Ala Lys Leu Thr  
 290 295 300  
 Lys Phe Pro Phe Lys Ala Ile Gly Lys Ala Val Ala Leu Gly Ala Ser  
 305 310 315 320  
 Asp Gly Phe Ala Ala Ile Val Ser His Glu Ile Thr Gln Gln Ile Leu  
 325 330 335  
 Gly Ala Tyr Val Ile Gly Pro His Ala Ser Ser Leu Ile Gly Glu Met  
 340 345 350  
 Thr Leu Ala Ile Arg Asn Glu Leu Thr Leu Pro Cys Ile Tyr Glu Thr  
 355 360 365  
 Val His Ala His Pro Thr Leu Ser Glu Val Trp Ala Glu Gly Ala Leu  
 370 375 380  
 Leu Ala Thr Asn His Pro Leu His Phe Pro Pro Lys Ser  
 385 390 395

&lt;210&gt;895

&lt;211&gt;97

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;895

Met Thr Gln Glu Phe Asp Cys Val Val Ile Gly Ala Gly Pro Ser Gly  
 1 5 10 15  
 Tyr Val Ala Ala Ile Thr Ala Ala Gln Ser Lys Leu Arg Thr Ala Leu  
 20 25 30  
 Ile Glu Glu Asp Gln Ala Gly Gly Thr Cys Leu Asn Arg Gly Cys Ile  
 35 40 45  
 Pro Ser Lys Ala Leu Ile Ala Gly Ala Asn Val Val Ser His Ile Lys  
 50 55 60  
 His Ala Glu Ser Ser Ala Ser Met Leu Met Val Ile Gln Ser Ile Thr  
 65 70 75 80  
 Leu Arg Trp Gln Lys Glu Lys Ile Gln Ser Ser Arg Gly Ser Val Lys  
 85 90 95

Asp

&lt;210&gt;896

&lt;211&gt;157

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;896

Lys Ile Pro Met Pro Phe Ala Lys Glu Thr Glu Met Gln Arg Thr Cys  
 1 5 10 15  
 Trp Lys Cys Glu Gly Ser Val Ser Met His Val Pro Gln Cys Pro Tyr  
 20 25 30  
 Cys Ser Ala Phe Leu Gln Asp Pro Pro Val Ala Ser Gly Gly Phe Ser  
 35 40 45  
 Ser Cys His Ile Ser Phe Pro Glu Gly Ala Ser Lys Glu Glu Ala Glu  
 50 55 60  
 Asp Leu Phe Ala Val Ser Ser Glu Asp Trp Glu Ala Val Leu Gly Asp  
 65 70 75 80  
 Gln Asn Pro Thr Gln Glu Thr Asn Lys Gln Val Ile Pro Glu Trp Thr  
 85 90 95  
 Trp Leu Gln Ser Trp Pro Leu Ala Ala Leu Phe Leu Gly Ile Gly Leu  
 100 105 110  
 Leu Ala Phe Ala Phe Leu Ile Leu Leu Phe Ser Thr Asp Ser Gly Leu  
 115 120 125  
 Val Leu Thr Trp Pro Lys Asn Arg Ala Tyr Phe Tyr Gly Ile Ile Gly  
 130 135 140  
 Ala Ala Val Ala Tyr Arg Gly Tyr Arg Lys Leu Pro Leu  
 145 150 155

&lt;210&gt;897

&lt;211&gt;170

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;897

Phe Gly Ser Leu Leu Ser Ile Leu Arg Lys Leu Gly Ser Ser Met Leu

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      1           5           10           15
Arg Phe Gln Gly Lys Ser Leu Asn Arg Lys Glu Glu Ile Glu Thr Phe
      20           25           30
Thr Thr Asp Pro Asn Cys Gln Val Phe Val Gly Ser Leu Leu Ala Ala
      35           40           45
Gly Thr Gly Ile Asn Leu Thr Ala Gly Asn Val Val Ile Met Tyr Asp
      50           55           60
Arg Trp Trp Asn Pro Ala Lys Glu Asn Gln Ala Leu Asp Arg Val His
      65           70           75           80
Arg Ile Gly Gln Lys Asn Thr Val Phe Ile Tyr Lys Leu Ile Thr Glu
      85           90           95
Asp Thr Leu Glu Arg Ile His Tyr Leu Ile Glu Lys Lys Ile Arg
      100          105          110
Leu Leu Asp Lys Val Ile Ala Ser Gln Asp Ser Asn Ile Leu His Met
      115          120          125
Leu Asn Arg Glu Asp Leu Leu Thr Ile Leu Ser Tyr Lys Asp Glu His
      130          135          140
Gly Thr Ser Asp Ser Glu Glu Ser Pro Val Asp Ala Pro Val Glu Asp
      145          150          155          160
Asp Thr Gly Val Leu Pro Pro Glu Asp Ser
      165          170

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&lt;210&gt;898

&lt;211&gt;301

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;898

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Leu Tyr Val Gln Gln Ser Val Leu Pro His Trp Glu His Ile Leu Ser
      1           5           10           15
Asn His Leu Pro Gly Val Ser Ile Phe Ser Phe His Gly Pro Asn Lys
      20           25           30
Pro Ser Glu Leu Pro Pro Ala Asp Ile Leu Leu Thr Ser Tyr Gly Thr
      35           40           45
Leu Arg Gln Asn Tyr Asp Lys Phe Tyr Lys Ile Ala Phe Thr Ile Val
      50           55           60
Val Phe Asp Glu Ile His Met Ala Lys Asn Lys Ser Ser Gln Ile His
      65           70           75           80
Lys Ile Leu Cys Arg Ile Asp Ala Gln Met Lys Leu Gly Leu Thr Gly
      85           90           95
Thr Pro Ile Glu Asn Asn Leu Leu Glu Phe Lys Gly Leu Leu Asp Ile
      100          105          110
Ile Leu Pro Asn Tyr Leu Pro Ser Asp Ala Leu Phe Lys Lys Leu Phe
      115          120          125
Thr Lys Arg Cys Ser Ser Glu Leu Glu Glu Ile Ile Pro Ser Gln
      130          135          140
Asp Leu Leu Leu Lys Leu Thr Arg Pro Phe Ile Leu Arg Arg Thr Lys
      145          150          155          160
Lys Leu Val Leu Pro Glu Leu Pro Asp Lys Val Glu Ser Ile Ile Ala
      165          170          175
Cys Ser Leu Ser Pro Asp Gln Glu Lys Leu Tyr Met Ala Thr Leu Gln
      180          185          190
Arg Glu Lys Ser His Ile Gln Lys Leu Glu Thr Pro Glu Glu Pro Ala
      195          200          205
Thr Asn Phe Leu His Ile Phe Ala Leu Leu Asn His Leu Lys Gln Ile
      210          215          220
Cys Asp His Pro Ala Val Phe Phe Lys Asp Pro Asp Gln Tyr Lys Asn
      225          230          235          240
Tyr Glu Ser Gly Lys Trp Asn Ala Phe Val Lys Leu Leu Lys Glu Ser
      245          250          255
Leu Asn Ala Gly Tyr Lys Val Val Val Phe Ser Gln Tyr Ile His Met
      260          265          270
Ile Arg Ile Ile Thr Leu Tyr Leu Glu Glu Ile Gly Ile Lys Tyr Ala
      275          280          285
Ser Ile Ser Arg Lys Ile Ser Glu Ser Glu Gly Arg Asn
      290          295          300

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&lt;210&gt;899

&lt;211&gt;610

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;899

Xaa Pro Leu Ser Ile Ala Leu Leu Lys Lys Phe Phe Phe Leu Asn Glu  
 1 5 10 15  
 Glu Gly Ala Glu Leu Thr Ile Gly Glu Asn Ser Gln Gly Phe Pro Ser  
 20 25 30  
 His Phe Ser Leu Gln Trp Gln Gly Leu Val Phe Lys Ala Glu Ile Leu  
 35 40 45  
 Asp Phe Pro Thr Leu Glu Asp Ile Phe Pro Lys Leu Glu Leu Ala His  
 50 55 60  
 Thr Ser Leu Glu Asn Val Ser His Asp Ile Ser Ile Thr Asn Val Thr  
 65 70 75 80  
 Val Cys Ala Glu Glu Ala Lys Val Asn Phe Thr Leu Ser Pro Val Ile  
 85 90 95  
 His Lys Lys Asp Arg Glu Asn His Pro Lys Thr Arg Ile Gly Ser Val  
 100 105 110  
 Glu Tyr Val Ala Lys Thr His Glu Met Ile Thr Gly Pro Lys Ala Ile  
 115 120 125  
 Ala Leu Pro Ile Tyr Ala Ile Pro Leu Leu Ala Asp Lys Phe Lys Asp  
 130 135 140  
 Gln Leu Leu Ser Leu Leu Cys Tyr Asp Ser Leu Glu Tyr Arg Leu Arg  
 145 150 155 160  
 Tyr Asp Ile Arg Leu Leu Arg Asp Ala Ser Phe Ser Phe Ser Ala Tyr  
 165 170 175  
 Leu Val Thr Pro Gly Asp Leu Asp Asn Gly Ser Leu Ile Tyr Pro Asn  
 180 185 190  
 Tyr Cys Tyr Ser Pro Thr Lys Gly Leu Met Gln Val Val Gly Met Leu  
 195 200 205  
 Ser Pro Lys Gln Ala Phe Ile Val Lys Ser Glu Gln Val Glu Asp Phe  
 210 215 220  
 Leu Asn Glu Arg Gly His Leu Ile Gln Glu Pro Gly Phe Gln Thr Phe  
 225 230 235 240  
 Ile Asn Glu Arg Pro Glu Gly His Leu Thr Tyr Asn Val Thr Glu Gln  
 245 250 255  
 Gly Val Leu Leu Phe His Tyr Asp Val Gly Asp Pro Ser Ser Thr Glu  
 260 265 270  
 Ile Arg Phe Gly Thr Trp Thr Tyr Tyr Thr Asn Gln Gly Phe Phe Leu  
 275 280 285  
 Glu Lys Lys Asn Asp Leu Pro Ile Gln Asp Gly Leu Ile Val Glu Pro  
 290 295 300  
 Gln Asp Ile Pro Ala Phe Ile Val Lys Asn Asp Ala Ala Leu Arg Arg  
 305 310 315 320  
 Leu Pro Asn Phe Phe Ser Ser Pro Pro Asn Leu Lys Asp Leu Leu Ile  
 325 330 335  
 Glu Val His Arg Gln Ser Arg Gly Lys Gly Leu Asp Leu Lys Pro Ile  
 340 345 350  
 Leu Val Gly Leu Gly Glu Ser Arg Cys Trp Leu Phe Gly Val Phe Leu  
 355 360 365  
 Tyr Arg Glu Asp Ile Gly Phe Ser Leu Ile Pro Thr Pro Leu Gln Gly  
 370 375 380  
 Leu Cys Phe Leu Pro Arg Val Ile Pro Pro Glu Asn Val Pro Gln Phe  
 385 390 395 400  
 Leu Thr Gln Tyr Ala Gln His Glu Arg Ile Leu Phe Pro Asn Pro Gln  
 405 410 415  
 Thr Arg Pro Pro Glu Ser Tyr Glu Leu Val Ile Gln Ser Ile His Arg  
 420 425 430  
 Pro His Pro Ala Ser Pro Leu His Leu Gln Leu Glu Leu Lys Thr Asn  
 435 440 445  
 Leu Gly Ser Val Pro Ile Gly Ile Ala Leu Gln Gly Leu Lys Ser Lys  
 450 455 460  
 His Thr Phe Leu Phe Thr Gln Ala Gly Phe Leu Asp Leu Lys Gln Asn

465                                      470                                      475                                      480  
 Leu Phe Gln Phe Leu Lys Gln Phe Leu Ser Thr Gln Lys Cys Val Ile  
    485                                      490                                      495  
 Ala Glu Asn Thr Val Ile Ala Asn Ile Thr Asp Val Phe Lys Leu Asp  
    500                                      505                                      510  
 Ala Leu Ala Pro Leu Ser Val Thr Asp Asp Thr Ile Ala Asn Pro Glu  
    515                                      520                                      525  
 Asp Leu Gln Phe Phe Ser Gln Leu Lys Ala Ala Cys Leu Pro Pro Ile  
    530                                      535                                      540  
 Pro Gln Asn Leu Phe Ser Ser Asp His Gln Leu Arg Pro Tyr Gln Asn  
 545                                      550                                      555                                      560  
 Ser Gly Leu Leu Trp Met Trp Phe Leu Tyr Asn His Arg Leu Ser Gly  
    565                                      570                                      575  
 Leu Leu Cys Asp Glu Met Gly Leu Gly Lys Thr His Gln Ala Thr Ala  
    580                                      585                                      590  
 Leu Thr Arg Tyr Cys Ile Ser Val Phe Thr Ala Leu Ser Ala Pro Glu  
    595                                      600                                      605  
 Ile Pro  
    610  
 <210>900  
 <211>181  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>900  
 His Asn Ile Met Val Leu Glu Ala Leu Ala Ile Phe Arg Gln Asp Ala  
   1  5  10  15  
 Met Gln His Leu Leu Lys His Arg Lys Glu Ile Val Val Asp Phe Cys  
   20  25  30  
 Glu Asp Ser Tyr Thr Ile Arg Ile Pro Asp Glu Glu Ala Pro Glu Gly  
   35  40  45  
 Tyr Trp Leu Ser Thr Leu Lys Leu Gln Asp Ile Asp Arg Leu Thr Phe  
   50  55  60  
 Ala Ser Cys Ser Cys Pro Asp Gly Glu Cys Cys Leu His Leu Met Thr  
   65  70  75  80  
 Ala Tyr Phe Ala Val Tyr Asp Ala Leu Gly Leu His Pro Leu His Asp  
   85  90  95  
 Lys Phe Arg His Ser Phe Trp Tyr Ala Val Phe Ser His Phe Phe Leu  
   100  105  110  
 Asp Ser Ile Pro Leu Gln Ala Gln Gly Glu Met Val Tyr Thr Leu Glu  
   115  120  125  
 Ser Pro His Ile Thr Leu Thr Ile Glu Cys Leu Ser Glu Glu Val Phe  
   130  135  140  
 Gln Asp Trp Leu Arg Thr Ile His Ala Ser Glu Glu Pro Thr Val Phe  
 145                                      150                                      155                                      160  
 Thr Asn Lys Thr Phe Leu Xaa Ser Ala Leu Tyr Arg Thr Ala Lys Lys  
   165                                      170                                      175  
 Ile Leu Phe Leu Lys  
   180  
 <210>901  
 <211>412  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>901  
 Met Lys Lys Asn Ala Ser His Lys Thr Asn Asp Lys Lys Ser Leu Ser  
   1  5  10  15  
 Ile Trp Ser Ile Gly Gly Ser Ile Phe Ala Met Phe Phe Gly Ala Gly  
   20  25  30  
 Asn Ile Val Phe Pro Leu Ala Leu Gly Tyr His Tyr Asn Ala His Pro  
   35  40  45  
 Trp Ser Ala Tyr Phe Gly Met Met Leu Thr Ala Val Cys Val Pro Leu  
   50  55  60  
 Leu Gly Leu Val Ser Met Leu Phe Tyr Ser Gly Asp Tyr Gln Lys Phe  
   65  70  75  80  
 Phe Phe Ser Ile Gly Arg Ile Pro Gly Met Ile Phe Ile Thr Ala Ile

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      85              90              95
Ile Leu Leu Ile Gly Pro Phe Gly Gly Ile Pro Arg Ala Ile Ala Val
      100              105              110
Ser His Ala Thr Leu Ile Ser Leu Ser Glu His Lys Ser Ala Phe Ile
      115              120              125
Pro Ser Leu Pro Ile Phe Ser Ala Ile Cys Cys Val Leu Ile Tyr Ile
      130              135              140
Phe Ser Cys Lys Leu Ser Arg Leu Ile Gln Trp Leu Gly Ser Val Phe
145              150              155              160
Phe Pro Ile Met Leu Val Thr Leu Leu Trp Val Ile Ile Arg Ser Phe
      165              170              175
Met Ile Pro Thr His Pro Met Val Gln Glu Phe Ile Pro Asn Ala Arg
      180              185              190
Gln Ala Trp Leu Ala Gly Phe Ile Glu Gly Phe Asn Thr Met Asp Leu
      195              200              205
Leu Ala Ala Phe Phe Phe Cys Ser Ile Val Leu Ile Ser Leu Arg Gln
      210              215              220
Leu Val Ala Glu Glu Lys His Pro Thr Glu Glu Glu Ile Pro Leu Ser
225              230              235              240
Phe Gln Gly Ile Ser Lys Lys Asn Lys Arg Ser Leu Ala Leu Gly Phe
      245              250              255
Phe Leu Ala Ala Ile Leu Leu Gly Met Thr Tyr Leu Gly Phe Val Leu
      260              265              270
Ser Ala Ala Arg His Ala Gly Leu Leu Val Asn Val Ser Lys Gly His
      275              280              285
Ile Leu Gly Arg Ile Ser Ala Ile Ala Leu Gly Pro Asn Ser Ile Leu
      290              295              300
Ala Gly Val Ser Val Phe Ile Ala Cys Leu Thr Thr Glu Ile Ala Leu
305              310              315              320
Val Gly Ile Val Ala Asp Phe Leu Ala Arg Val Val Ser Phe Lys Lys
      325              330              335
Leu Asn Tyr Ala Ser Ala Val Ile Cys Thr Leu Ile Pro Thr Tyr Leu
      340              345              350
Ile Ser Ile Leu Asn Phe Glu Thr Ile Ser His Leu Leu Leu Pro Leu
      355              360              365
Leu Gln Leu Ser Tyr Pro Ala Leu Ile Val Leu Ala Cys Gly Asn Ile
      370              375              380
Ala Tyr Lys Leu Trp Asn Phe Arg Tyr Ser Pro Val Leu Phe Tyr Leu
385              390              395              400
Thr Leu Ser Leu Thr Ile Val Leu Lys Leu Val Asn
      405              410

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&lt;210&gt;902

&lt;211&gt;211

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;902

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Leu Thr Met Lys Gln Phe Ile Leu Arg Thr Leu Asn Ala Leu Phe Pro
  1              5              10              15
Asn Pro Lys Pro Ser Leu Glu Gly Trp Ser Ser Pro Phe Gln Leu Leu
      20              25              30
Ile Ala Ile Leu Leu Ser Gly Asn Ser Thr Asp Lys Ala Val Asn Ser
      35              40              45
Val Thr Pro Gln Leu Phe Ala Lys Ala Pro Asp Ala Gln Ser Ile Leu
      50              55              60
Asp Leu Pro Pro Gly Lys Leu Tyr Gln Leu Ile Ala Pro Cys Gly Leu
      65              70              75              80
Gly Glu Arg Lys Ser Ala Tyr Ile Tyr Gln Leu Ser Gln Ile Leu Val
      85              90              95
Arg Asp Phe His Gly Glu Pro Pro Asn Asp Met Ala Leu Leu Thr Gln
      100              105              110
Leu Pro Gly Val Gly Arg Lys Thr Ala Ser Val Phe Leu Gly Ile Ala
      115              120              125
Tyr Gly Lys Pro Thr Phe Pro Val Asp Thr His Ile Leu Arg Leu Ala
      130              135              140

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Gln Arg Trp Lys Ile Ser Glu Lys Lys Ser Pro Ser Ala Ala Glu Lys  
 145 150 155 160  
 Asp Leu Ala Arg Phe Phe Gly His Glu Asn Thr Pro Lys Leu His Leu  
 165 170 175  
 Gln Leu Ile Tyr Ala Arg Gln Tyr Cys Pro Ala Leu His His Lys  
 180 185 190  
 Ile Asp Asn Cys Pro Ile Cys Ser Tyr Leu Ala Lys Glu Ala Asn Ser  
 195 200 205  
 Thr Arg Thr  
 210  
 <210>903  
 <211>442  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>903  
 Met Leu Lys His Asp Thr Ile Ala Ala Ile Ala Thr Pro Pro Gly Glu  
 1 5 10 15  
 Gly Ser Ile Ala Val Val Arg Leu Ser Gly Pro Gln Ala Ile Val Ile  
 20 25 30  
 Ala Asp Arg Ile Phe Ser Gly Ser Val Ala Ser Phe Ala Ser His Thr  
 35 40 45  
 Ile His Leu Gly Gln Val Ile Phe Glu Glu Thr Leu Ile Asp Gln Ala  
 50 55 60  
 Leu Leu Leu Leu Met Arg Ser Pro Arg Ser Phe Thr Gly Glu Asp Val  
 65 70 75 80  
 Val Glu Phe Gln Cys His Gly Gly Phe Phe Ala Cys Ser Gln Ile Leu  
 85 90 95  
 Asp Ala Leu Ile Ala Leu Gly Ala Arg Pro Ala Leu Pro Gly Glu Phe  
 100 105 110  
 Ser Gln Arg Ala Phe Leu Asn Gly Lys Ile Asp Leu Val Gln Ala Glu  
 115 120 125  
 Ala Ile Gln Asn Leu Ile Val Ala Glu Asn Ile Asp Ala Phe Arg Ile  
 130 135 140  
 Ala Gln Thr His Phe Gln Gly Asn Phe Ser Lys Lys Ile Gln Glu Ile  
 145 150 155 160  
 His Thr Leu Ile Ile Glu Ala Leu Ala Phe Leu Glu Val Leu Ala Asp  
 165 170 175  
 Phe Pro Glu Glu Glu Gln Pro Asp Leu Leu Val Pro Gln Glu Lys Ile  
 180 185 190  
 Gln Asn Ala Leu His Ile Val Glu Asp Phe Ile Ser Ser Phe Asp Glu  
 195 200 205  
 Gly Gln Arg Leu Ala Gln Gly Thr Ser Leu Ile Leu Ala Gly Lys Pro  
 210 215 220  
 Asn Val Gly Lys Ser Ser Leu Leu Asn Ala Leu Leu Gln Lys Asn Arg  
 225 230 235 240  
 Ala Ile Val Thr His Ile Pro Gly Thr Thr Arg Asp Ile Leu Glu Glu  
 245 250 255  
 Gln Trp Leu Leu Gln Gly Lys Arg Ile Arg Leu Leu Asp Thr Ala Gly  
 260 265 270  
 Gln Arg Thr Thr Asp Asn Asp Ile Glu Lys Glu Gly Ile Glu Arg Ala  
 275 280 285  
 Leu Ser Ala Met Glu Glu Ala Asp Gly Ile Leu Trp Val Ile Asp Ala  
 290 295 300  
 Thr Gln Pro Leu Glu Asp Leu Pro Lys Ile Leu Phe Thr Lys Pro Ser  
 305 310 315 320  
 Phe Leu Leu Trp Asn Lys Ala Asp Leu Thr Pro Pro Pro Phe Leu Asp  
 325 330 335  
 Thr Ser Leu Pro Gln Phe Ala Ile Ser Ala Lys Thr Gly Glu Gly Leu  
 340 345 350  
 Thr Gln Val Lys Gln Ala Leu Ile Gln Trp Met Gln Lys Gln Glu Ala  
 355 360 365  
 Gly Lys Thr Ser Lys Val Phe Leu Val Ser Ser Arg His His Met Ile  
 370 375 380  
 Leu Gln Glu Val Ala Arg Cys Leu Lys Glu Ala Gln Lys Asn Leu Tyr

385 390 395 400  
 Leu Gln Pro Pro Glu Ile Ile Ala Leu Glu Leu Arg Glu Ala Leu His  
 405 410 415  
 Ser Ile Gly Met Leu Ser Gly Lys Glu Val Thr Glu Ser Ile Leu Gly  
 420 425 430  
 Glu Ile Phe Ser Lys Phe Cys Ile Gly Lys  
 435 440  
 <210>904  
 <211>303  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>904  
 Gly Leu Val Gln Lys Pro Gln Tyr Ile Asp Arg Ile Thr Lys Lys Lys  
 1 5 10 15  
 Val Ile Glu Pro Ile Phe Tyr Glu Lys Thr Met Leu Phe Leu Tyr Asn  
 20 25 30  
 Ser Lys Leu Gly Lys Lys Leu Ser Val Phe Leu Ser Thr His Pro Ile  
 35 40 45  
 Phe Ser Arg Ile Tyr Gly Trp Leu Gln Arg Cys Ser Trp Thr Arg Arg  
 50 55 60  
 Gln Ile Arg Pro Phe Met Asn Arg Tyr Lys Ile Ser Glu Lys Glu Leu  
 65 70 75 80  
 Thr Lys Pro Val Ala Asp Phe Thr Ser Phe Asn Asp Phe Phe Thr Arg  
 85 90 95  
 Lys Leu Lys Pro Glu Ala Arg Pro Ile Val Gly Gly Lys Glu Val Phe  
 100 105 110  
 Ile Thr Pro Val Asp Gly Arg Tyr Leu Val Tyr Pro Asn Val Ser Glu  
 115 120 125  
 Phe Asp Lys Phe Ile Val Lys Ser Lys Ala Phe Ser Leu Pro Lys Leu  
 130 135 140  
 Leu Gly Asp His Glu Leu Thr Lys Leu Tyr Ala His Gly Ser Ile Val  
 145 150 155 160  
 Phe Ala Arg Leu Ala Pro Phe Asp Tyr His Arg Phe His Phe Pro Cys  
 165 170 175  
 Asp Cys Leu Pro Gln Lys Thr Arg Cys Val Asn Gly Ala Leu Phe Ser  
 180 185 190  
 Val His Pro Leu Ala Val Lys Asp Asn Phe Ile Leu Phe Cys Glu Asn  
 195 200 205  
 Lys Arg Thr Val Thr Val Leu Glu Thr Glu Gln Phe Gly Asn Val Leu  
 210 215 220  
 Tyr Leu Glu Val Gly Ala Met Asn Val Gly Ser Ile Val Gln Thr Phe  
 225 230 235 240  
 Ser Pro Asn Gln Thr Tyr Ala Lys Gly Asp Glu Lys Gly Phe Phe Ala  
 245 250 255  
 Phe Gly Gly Ser Thr Val Ile Leu Leu Phe Leu Pro Asn Ala Ile Arg  
 260 265 270  
 Phe Asp Asn Asp Leu Leu Lys Asn Ser Arg Met Gly Phe Glu Thr Arg  
 275 280 285  
 Cys Leu Met Gly Gln Ser Leu Gly Arg Ser Gln Arg Glu Glu Ile  
 290 295 300  
 <210>905  
 <211>468  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>905  
 Ile Ser Glu Arg Arg Asn Leu Lys Thr Leu Lys Thr Phe Phe Gly Ile  
 1 5 10 15  
 Ala Lys Arg Asp Lys Ser Gln Lys Trp Arg Ile Met Trp Leu Val Ile  
 20 25 30  
 Leu Trp Ala Leu Ala Ala Ser Leu Ala Ile Ala Leu Val Ala Lys Gly  
 35 40 45  
 Tyr Tyr Arg Phe Val Tyr Phe Arg Arg Tyr Ala Val Gln Val Ile Arg  
 50 55 60  
 Glu Val Arg Leu Ser Met Glu Leu Lys Glu Trp Ala Leu Ala Glu Gln

|                           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|---------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 65                        |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Gln                       | Leu | Leu | Pro | Ile | Leu | Lys | Lys | Arg | Ser | Tyr | Arg | Arg | Gln | Cys | Leu |
|                           |     |     |     | 85  |     |     |     |     |     | 90  |     |     |     | 95  |     |
| Phe                       | Glu | Tyr | Met | Arg | Ile | Leu | Arg | Lys | Met | Gln | Arg | Phe | Glu | Glu | Ser |
|                           |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Glu                       | Lys | Leu | Leu | Ala | Glu | Ala | Lys | Lys | Leu | Gly | Leu | Arg | Gly | Pro | Tyr |
|                           |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Phe                       | Phe | Leu | Glu | Ile | Ala | Tyr | Lys | Ala | Tyr | Arg | Phe | Gly | Ala | Phe | Lys |
|                           | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Glu                       | Cys | Ala | Gln | Ala | Phe | Ala | Ser | Val | Pro | Gln | Asp | Leu | Phe | Glu | Glu |
|                           | 145 |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Glu                       | Asp | Ala | Ala | Lys | Tyr | Ala | Ser | Ala | Leu | Val | Arg | Leu | Gly | Asp | Leu |
|                           |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Asp                       | Ala | Ala | Cys | Ser | Leu | Ile | Glu | Pro | Trp | Ile | Ser | Pro | Leu | Ser | His |
|                           |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Gln                       | Glu | Thr | Phe | Val | Thr | Met | Gly | His | Ile | Tyr | Phe | Thr | Ser | Lys | Arg |
|                           | 195 |     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |
| Tyr                       | Lys | Asp | Ala | Ile | Asp | Phe | Tyr | Asn | Arg | Ala | Asn | Ala | Leu | Gly | Val |
|                           | 210 |     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |     |
| Cys                       | Pro | Val | Glu | Val | Thr | Tyr | Asn | Leu | Ala | Gln | Ala | Tyr | Arg | Ile | Thr |
|                           | 225 |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Ser                       | Ser | Tyr | Ala | Lys | Ala | Gly | Lys | Leu | Phe | Arg | Lys | Leu | Leu | Ser | Asn |
|                           |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Pro                       | Val | Tyr | Lys | Glu | Glu | Ala | Leu | Phe | Asn | Ile | Gly | Leu | Cys | Glu | Gln |
|                           |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Lys                       | Leu | Gly | Arg | Pro | Gly | Lys | Ala | Leu | Leu | Ile | Tyr | Gln | Ser | Ser | Asp |
|                           | 275 |     |     |     |     | 280 |     |     |     |     |     | 285 |     |     |     |
| Leu                       | Trp | Ser | Arg | Gly | Asp | Ala | Leu | Leu | Met | Lys | Tyr | Ala | Ala | Met | Ala |
|                           | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Ala                       | Met | Asp | Gln | Arg | Asp | Tyr | Val | Leu | Ala | Glu | Pro | Cys | Trp | Glu | Leu |
|                           | 305 |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Ala                       | Leu | Arg | Cys | Ser | Thr | Phe | Ala | Lys | Asp | Tyr | Lys | Cys | Gly | Leu | Gly |
|                           |     |     | 325 |     |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Tyr                       | Gly | Phe | Ser | Leu | Cys | Arg | Leu | Arg | Lys | Tyr | Gly | Asp | Ala | Glu | Arg |
|                           |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Val                       | Tyr | Cys | Asn | Leu | Ile | Gln | Asn | Phe | Pro | Glu | Cys | Leu | Thr | Ala | Cys |
|                           | 355 |     |     |     |     | 360 |     |     |     |     |     | 365 |     |     |     |
| Lys                       | Ala | Leu | Ala | Trp | Leu | Cys | Gly | Val | Gly | Tyr | Ala | Thr | Leu | Leu | Gly |
|                           | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Ser                       | Glu | Glu | Gly | Leu | Met | Tyr | Ala | Lys | Lys | Ala | Val | Glu | Leu | Asp | His |
|                           | 385 |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Ser                       | Cys | Glu | Thr | Leu | Glu | Leu | Leu | Ser | Ala | Cys | Glu | Ala | Arg | Cys | Gly |
|                           |     |     | 405 |     |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Asn                       | Phe | Asp | Ala | Ala | Tyr | Glu | Ile | Gln | Ser | Phe | Leu | Ser | Ser | Arg | Asp |
|                           |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Thr                       | Ser | Leu | Gln | Glu | Lys | Gln | Arg | Arg | Ser | Gln | Ile | Leu | Arg | Ile | Leu |
|                           | 435 |     |     |     |     | 440 |     |     |     |     |     | 445 |     |     |     |
| Arg                       | Lys | Lys | Leu | Pro | Leu | Asn | Asp | His | His | Ile | Val | Glu | Val | Asp | Ala |
|                           | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Leu                       | Leu | Ala | Ala |     |     |     |     |     |     |     |     |     |     |     |     |
|                           | 465 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| <210>906                  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| <211>970                  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| <212>PRT                  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| <213>Chlamydia pneumoniae |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| <400>906                  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Met                       | Leu | Gly | Phe | Leu | Lys | Arg | Phe | Phe | Gly | Ser | Ser | Gln | Glu | Arg | Ile |
|                           | 1   |     |     | 5   |     |     |     |     | 10  |     |     |     | 15  |     |     |
| Leu                       | Lys | Lys | Phe | Gln | Lys | Leu | Val | Asp | Lys | Val | Asn | Ile | Tyr | Asp | Glu |
|                           |     |     | 20  |     |     |     |     | 25  |     |     |     | 30  |     |     |     |
| Met                       | Leu | Thr | Pro | Leu | Ser | Asp | Asp | Glu | Leu | Arg | Asn | Lys | Thr | Ala | Glu |
|                           |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Leu                       | Lys | Gln | Arg | Tyr | Gln | Asn | Gly | Glu | Ser | Leu | Asp | Ser | Met | Leu | Pro |
|                           | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Ala | Tyr | Gly | Val | Val | Lys | Asn | Val | Cys | Arg | Arg | Leu | Ala | Gly | Thr |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Pro | Val | Glu | Val | Ser | Gly | Tyr | His | Gln | Arg | Trp | Asp | Met | Val | Pro | Tyr |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Asp | Val | Gln | Ile | Leu | Gly | Ala | Ile | Ala | Met | His | Lys | Gly | Phe | Ile | Thr |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Glu | Met | Gln | Thr | Gly | Glu | Gly | Lys | Thr | Leu | Thr | Ala | Val | Met | Pro | Leu |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Tyr | Leu | Asn | Ala | Leu | Thr | Gly | Lys | Pro | Val | His | Leu | Val | Thr | Val | Asn |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Asp | Tyr | Leu | Ala | Gln | Arg | Asp | Cys | Glu | Trp | Val | Gly | Ser | Val | Leu | Arg |
| 145 |     |     |     | 150 |     |     |     |     |     | 155 |     |     |     | 160 |     |
| Trp | Leu | Gly | Leu | Thr | Thr | Gly | Val | Leu | Val | Ser | Gly | Thr | Leu | Leu | Glu |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |     |
| Lys | Arg | Lys | Lys | Ile | Tyr | Gln | Cys | Asp | Val | Val | Tyr | Gly | Thr | Ala | Ser |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Glu | Phe | Gly | Phe | Asp | Tyr | Leu | Arg | Asp | Asn | Ser | Ile | Ala | Thr | Arg | Leu |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Glu | Glu | Gln | Val | Gly | Arg | Gly | Tyr | Tyr | Phe | Ala | Ile | Ile | Asp | Glu | Val |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Asp | Ser | Ile | Leu | Ile | Asp | Glu | Ala | Arg | Thr | Pro | Leu | Ile | Ile | Ser | Gly |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     | 240 |     |
| Pro | Gly | Glu | Lys | His | Asn | Pro | Val | Tyr | Phe | Glu | Leu | Lys | Glu | Lys | Val |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Ala | Ser | Leu | Val | Tyr | Leu | Gln | Lys | Glu | Leu | Cys | Ser | Arg | Ile | Ala | Leu |
|     |     | 260 |     |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Glu | Ala | Arg | Arg | Gly | Leu | Asp | Ser | Phe | Leu | Asp | Val | Asp | Ile | Leu | Pro |
|     | 275 |     |     |     |     | 280 |     |     |     |     |     | 285 |     |     |     |
| Lys | Asp | Lys | Lys | Val | Leu | Glu | Gly | Ile | Ser | Glu | Phe | Cys | Arg | Ser | Leu |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Trp | Leu | Val | Ser | Lys | Gly | Met | Pro | Leu | Asn | Arg | Val | Leu | Arg | Arg | Val |
| 305 |     |     |     | 310 |     |     |     |     |     | 315 |     |     |     | 320 |     |
| Arg | Glu | His | Pro | Asp | Leu | Arg | Ala | Met | Ile | Asp | Lys | Trp | Asp | Val | Tyr |
|     |     |     | 325 |     |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Tyr | His | Ala | Glu | Gln | Asn | Lys | Glu | Glu | Ser | Leu | Glu | Arg | Leu | Ser | Glu |
|     |     | 340 |     |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Leu | Tyr | Ile | Ile | Val | Asp | Glu | His | Asn | Asn | Asp | Phe | Glu | Leu | Thr | Asp |
|     | 355 |     |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Lys | Gly | Met | Gln | Gln | Trp | Val | Glu | Tyr | Ala | Gly | Gly | Ser | Thr | Glu | Glu |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Phe | Val | Met | Met | Asp | Met | Gly | His | Glu | Tyr | Ala | Leu | Ile | Glu | Asn | Asp |
| 385 |     |     |     | 390 |     |     |     |     |     | 395 |     |     |     | 400 |     |
| Glu | Thr | Leu | Ser | Pro | Ala | Asp | Lys | Ile | Asn | Lys | Lys | Ile | Ala | Ile | Ser |
|     |     |     | 405 |     |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Glu | Glu | Asp | Thr | Leu | Arg | Lys | Ala | Arg | Ala | His | Gly | Leu | Arg | Gln | Leu |
|     |     | 420 |     |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Leu | Arg | Ala | Gln | Leu | Leu | Met | Glu | Arg | Asp | Val | Asp | Tyr | Ile | Val | Arg |
|     | 435 |     |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Asp | Asp | Gln | Ile | Val | Ile | Ile | Asp | Glu | His | Thr | Gly | Arg | Pro | Gln | Pro |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Gly | Arg | Arg | Phe | Ser | Glu | Gly | Leu | His | Gln | Ala | Ile | Glu | Ala | Lys | Glu |
| 465 |     |     |     | 470 |     |     |     |     |     | 475 |     |     |     | 480 |     |
| His | Val | Thr | Ile | Arg | Lys | Glu | Ser | Gln | Thr | Leu | Ala | Thr | Val | Thr | Leu |
|     |     |     | 485 |     |     |     |     |     | 490 |     |     |     |     | 495 |     |
| Gln | Asn | Phe | Phe | Arg | Leu | Tyr | Glu | Lys | Leu | Ala | Gly | Met | Thr | Gly | Thr |
|     |     | 500 |     |     |     |     |     | 505 |     |     |     |     | 510 |     |     |
| Ala | Ile | Thr | Glu | Ser | Arg | Glu | Phe | Lys | Glu | Ile | Tyr | Asn | Leu | Tyr | Val |
|     | 515 |     |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |
| Leu | Gln | Val | Pro | Thr | Phe | Lys | Pro | Cys | Leu | Arg | Ile | Asp | His | Asn | Asp |
|     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |
| Glu | Phe | Tyr | Met | Thr | Glu | Arg | Glu | Lys | Tyr | His | Ala | Ile | Val | Asn | Glu |
| 545 |     |     |     | 550 |     |     |     |     |     | 555 |     |     |     | 560 |     |
| Ile | Ala | Thr | Ile | His | Gly | Lys | Gly | Asn | Pro | Ile | Leu | Val | Gly | Thr | Glu |
|     |     |     | 565 |     |     |     |     | 570 |     |     |     |     |     | 575 |     |

Ser Val Glu Val Ser Glu Lys Leu Ser Arg Ile Leu Arg Gln Asn Arg  
 580 585 590  
 Ile Glu His Thr Val Leu Asn Ala Lys Asn His Ala Gln Glu Ala Glu  
 595 600 605  
 Ile Ile Ala Gly Ala Gly Lys Leu Gly Ala Val Thr Val Ala Thr Asn  
 610 615 620  
 Met Ala Gly Arg Gly Thr Asp Ile Lys Leu Asp Asn Glu Ala Val Ile  
 625 630 635 640  
 Val Gly Gly Leu His Val Ile Gly Thr Thr Arg His Gln Ser Arg Arg  
 645 650 655  
 Ile Asp Arg Gln Leu Arg Gly Arg Cys Ala Arg Leu Gly Asp Pro Gly  
 660 665 670  
 Ala Ala Lys Phe Phe Leu Ser Phe Glu Asp Arg Leu Met Arg Leu Phe  
 675 680 685  
 Ala Ser Pro Lys Leu Asn Thr Leu Ile Arg His Phe Arg Pro Pro Glu  
 690 695 700  
 Gly Glu Ala Met Ser Asp Pro Met Phe Asn Arg Leu Ile Glu Thr Ala  
 705 710 715 720  
 Gln Lys Arg Val Glu Gly Arg Asn Tyr Thr Ile Arg Lys His Thr Leu  
 725 730 735  
 Glu Tyr Asp Asp Val Met Asn Lys Gln Arg Gln Ala Ile Tyr Ala Phe  
 740 745 750  
 Arg His Asp Val Leu His Ala Glu Ser Val Phe Asp Leu Ala Lys Glu  
 755 760 765  
 Ile Leu Cys His Val Ser Leu Met Val Ala Ser Leu Val Met Ser Asp  
 770 775 780  
 Arg Gln Phe Lys Gly Trp Thr Leu Pro Asn Leu Glu Glu Trp Ile Thr  
 785 790 795 800  
 Ser Ser Phe Pro Ile Ala Leu Asn Ile Glu Glu Leu Arg Gln Leu Lys  
 805 810 815  
 Asp Thr Asp Ser Ile Ala Glu Lys Ile Ala Ala Glu Leu Ile Gln Glu  
 820 825 830  
 Phe Gln Val Arg Phe Asp His Met Val Glu Gly Leu Ser Lys Ala Gly  
 835 840 845  
 Gly Glu Glu Leu Asp Ala Ser Ala Ile Cys Arg Asp Val Val Arg Ser  
 850 855 860  
 Val Met Val Met His Ile Asp Glu Gln Trp Arg Ile His Leu Val Asp  
 865 870 875 880  
 Met Asp Leu Leu Arg Ser Glu Val Gly Leu Arg Thr Val Gly Gln Lys  
 885 890 895  
 Asp Pro Leu Leu Glu Phe Lys His Glu Ser Phe Leu Leu Phe Glu Ser  
 900 905 910  
 Leu Ile Arg Asp Ile Arg Ile Thr Ile Ala Arg His Leu Phe Arg Leu  
 915 920 925  
 Glu Leu Thr Val Glu Pro Asn Pro Arg Val Asn Asn Val Ile Pro Thr  
 930 935 940  
 Val Ala Thr Ser Phe His Asn Asn Val Asn Tyr Gly Pro Leu Glu Leu  
 945 950 955 960  
 Thr Val Val Thr Asp Ser Glu Asp Gln Asp  
 965 970

&lt;210&gt;907

&lt;211&gt;487

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;907

Met Leu Lys Ile Ala Ile Leu Gly Arg Pro Asn Val Gly Lys Ser Ser  
 1 5 10 15  
 Leu Phe Asn Arg Leu Cys Lys Arg Ser Leu Ala Ile Val Asn Ser Gln  
 20 25 30  
 Glu Gly Thr Thr Arg Asp Arg Leu Tyr Gly Glu Leu His Ala Phe Gly  
 35 40 45  
 Val Pro Ala Gln Val Ile Asp Thr Gly Gly Val Asp His Asn Ser Glu  
 50 55 60  
 Asp Tyr Phe Gln Lys His Ile Tyr Asn Gln Ala Leu Thr Gly Ala Lys

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65          70          75          80
Glu Ala Asp Val Leu Leu Leu Val Ile Asp Ile Arg Cys Gly Ile Thr
          85          90          95
Glu Glu Asp Ala His Leu Ala Lys Leu Leu Leu Pro Leu Lys Lys Pro
          100          105          110
Leu Ile Leu Val Ala Asn Lys Ala Asp Ser Arg Gln Glu Glu Leu Gln
          115          120          125
Ile His Glu Thr Tyr Lys Leu Gly Ile Arg Asp Ile Val Val Thr Ser
          130          135          140
Thr Ala His Asp Lys His Ile Asp Thr Leu Leu Gln Arg Ile Lys Leu
          145          150          155          160
Val Ala Asn Leu Pro Glu Pro Arg Glu Glu Glu Glu Gly Leu Glu
          165          170          175
Glu Leu Ser Val Asp Glu His Glu Glu Ser Glu Ala Ala Leu Pro Ser
          180          185          190
Asn Thr Phe Pro Asp Phe Ser Glu Val Phe Thr Glu Gly Phe Ser Pro
          195          200          205
Glu Glu Pro Cys Thr Ile Pro Glu Ser Pro Gln Gln Ala Pro Lys Thr
          210          215          220
Leu Lys Ile Ala Leu Ile Gly Arg Pro Asn Val Gly Lys Ser Ser Ile
          225          230          235          240
Ile Asn Gly Leu Leu Asn Glu Glu Arg Cys Ile Ile Asp Asn Thr Pro
          245          250          255
Gly Thr Thr Arg Asp Asn Ile Asp Ile Leu Tyr Ser His Lys Asp Arg
          260          265          270
Gln Tyr Leu Phe Ile Asp Thr Ala Gly Leu Arg Lys Met Lys Ser Val
          275          280          285
Lys Asn Ser Ile Glu Trp Ile Ser Ser Ser Arg Thr Glu Lys Ala Ile
          290          295          300
Ser Arg Ala Asp Ile Cys Leu Leu Val Ile Asp Ala Thr Gln Lys Leu
          305          310          315          320
Ser Ser Tyr Glu Lys Arg Ile Leu Ser Leu Ile Ser Lys Arg Lys Lys
          325          330          335
Pro His Ile Ile Leu Ile Asn Lys Trp Asp Leu Leu Glu Glu Val Arg
          340          345          350
Met Glu His Tyr Cys Lys Asp Leu Arg Ala Thr Asp Pro Tyr Leu Gly
          355          360          365
Gln Ala Lys Met Leu Cys Ile Ser Ala Thr Thr Lys Arg Asn Leu Lys
          370          375          380
Lys Ile Phe Ser Ala Ile Asp Glu Leu His His Val Val Ser Asn Lys
          385          390          395          400
Val Pro Thr Pro Ile Val Asn Lys Thr Leu Ala Ser Ala Leu His Arg
          405          410          415
Asn His Pro Gln Val Ile Gln Gly Arg Arg Leu Arg Ile Tyr Tyr Ala
          420          425          430
Ile Gln Lys Thr Thr Thr Pro Leu Gln Phe Leu Leu Phe Ile Asn Ala
          435          440          445
Lys Ser Leu Leu Thr Lys His Tyr Glu Tyr Tyr Leu Lys Asn Thr Leu
          450          455          460
Lys Ser Ser Phe Asn Leu Tyr Gly Ile Pro Phe Asp Leu Glu Phe Lys
          465          470          475          480
Glu Lys Pro Lys Arg His Asn
          485
<210>908
<211>410
<212>PRT
<213>Chlamydia pneumoniae
<400>908
Met Thr Thr Ile Ala Ile Glu Ala Ala Lys Lys Val Leu Ile Lys Leu
1          5          10          15
Arg Asn Ala Gly Tyr Gln Ala Tyr Phe Val Gly Gly Cys Val Arg Asp
          20          25          30
Met Leu Met Asn Arg Pro Leu Glu Asp Ile Asp Ile Ala Thr Asn Ala
          35          40          45

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Ser Pro Thr Ile Val Ser Thr Ile Phe Pro Asp Val Ile Ser Ile Gly  
 50 55 60  
 Val Ala Phe Gly Ile Ile Val Val Lys Gln Asp Gly Arg Leu Phe Glu  
 65 70 75 80  
 Val Ala Thr Phe Arg Ser Asp Gly Glu Tyr Lys Asp Gly Arg His Pro  
 85 90 95  
 Asp Arg Ile Ile Phe Ser Ser Met Arg Glu Asp Ala Leu Arg Arg Asp  
 100 105 110  
 Phe Thr Val Asn Gly Met Tyr Tyr Asp Pro Phe Glu Asp Lys Val Phe  
 115 120 125  
 Asp Phe Val Glu Gly Thr Arg Asp Ile Glu Lys Lys Val Ile Arg Ala  
 130 135 140  
 Ile Gly His Pro Arg Leu Arg Phe Ser Glu Asp Lys Leu Arg Ile Leu  
 145 150 155 160  
 Arg Ala Ile Arg Phe Ser Ser Ser Leu Gly Phe Thr Leu Asp Pro Thr  
 165 170 175  
 Thr Glu Arg Ala Ile Ile Lys Glu Ala Pro Ala Leu Val Asn Ser Val  
 180 185 190  
 Ser Pro Glu Arg Ile Trp Gln Glu Leu Lys Lys Met Leu Lys Arg Gln  
 195 200 205  
 Pro Tyr Gly Ala Leu Ser Leu Leu Lys Leu Lys Val Leu Ile Phe  
 210 215 220  
 Ile Phe Pro Glu Leu Arg Asp Ile Pro Tyr Ser Leu Leu Arg Thr Thr  
 225 230 235 240  
 Ile Glu Phe Ala Arg Lys Phe Asn Pro Thr His Phe Pro Glu Ile Leu  
 245 250 255  
 Phe Leu Leu Pro Leu Phe Gln Gly Val Ser Glu Glu Ala Ala Thr Val  
 260 265 270  
 Ala Phe Gly Arg Leu Arg Ile Ser Asn Lys Glu Leu Lys Leu Ile Glu  
 275 280 285  
 Ser Trp Tyr Glu Ala Leu Pro His Phe Gln Asn Gln Ser Gly Asn Arg  
 290 295 300  
 Val Phe Trp Ala His Phe Leu Ala Ser Pro Thr Ala Pro Leu Phe Leu  
 305 310 315 320  
 Glu Leu Phe Ser Ala Leu Gln Lys Asp Pro Ser Arg Gln Gln His Phe  
 325 330 335  
 Ile Ser Arg Val Gln Glu Leu Glu Ser Arg Leu Glu Gln Phe Ile Leu  
 340 345 350  
 Arg Ile Lys Thr Ser Ser Pro Val Val Ser Ala Pro Asp Leu Ile Ala  
 355 360 365  
 Lys Gly Ile Ser Pro Gly Arg Leu Leu Gly Asp Leu Leu Arg Glu Ala  
 370 375 380  
 Glu Ile Leu Ser Ile Glu Asn Glu Cys Leu Asp Lys Glu Lys Ile Leu  
 385 390 395 400  
 Leu Leu Leu Gln Glu Lys Gly Phe Trp Lys  
 405 410

&lt;210&gt;909

&lt;211&gt;185

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;909

Arg Val Tyr Pro Ser Gln Tyr Gly Lys Tyr Leu Ile Tyr Arg Arg Arg  
 1 5 10 15  
 Thr Phe Val Asn Leu Asp Lys Ile Ile Ala Lys Arg Leu Gly Lys Thr  
 20 25 30  
 Thr Ile Gly Phe Ser Asp Asp Gln Ala Asp Leu Ser Gln Lys Thr Arg  
 35 40 45  
 Asp His Leu Leu Ala Lys Val Glu Thr Glu Asp Leu Ile Ala Phe Gly  
 50 55 60  
 Met Ile Pro Glu Phe Val Gly Arg Phe Asn Cys Ile Val Asn Cys Glu  
 65 70 75 80  
 Glu Leu Ser Leu Asp Glu Leu Val Ala Ile Leu Thr Glu Pro Thr Asn  
 85 90 95  
 Ala Ile Val Lys Gln Tyr Met Glu Leu Phe Ala Glu Glu Asn Val Lys

100 105 110  
 Leu Val Phe Lys Lys Glu Ala Leu Tyr Ala Ile Ala Lys Lys Ala Lys  
 115 120 125  
 Gln Ala Lys Thr Gly Ala Arg Ala Leu Gly Met Ile Leu Glu Asn Leu  
 130 135 140  
 Leu Arg Asp Leu Met Phe Glu Ile Pro Ser Asp Pro Thr Val Glu Ala  
 145 150 155 160  
 Ile His Ile Gln Glu Asp Thr Ile Ala Glu Asn Lys Ala Pro Ile Ile  
 165 170 175  
 Ile Arg Arg Thr Pro Glu Ala Ile Ala  
 180 185

&lt;210&gt;910

&lt;211&gt;256

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;910

Met Asn Lys Lys Asn Leu Thr Ile Cys Ser Phe Cys Gly Arg Ser Glu  
 1 5 10 15  
 Lys Asp Val Glu Lys Leu Ile Ala Gly Pro Ser Val Tyr Ile Cys Asp  
 20 25 30  
 Tyr Cys Ile Lys Leu Cys Ser Gly Ile Leu Asp Lys Lys Pro Ser Ser  
 35 40 45  
 Thr Ile Ser Ser Ala Pro Val Ser Glu Thr Pro Ser Gln Pro Ser Asp  
 50 55 60  
 Leu Arg Val Leu Thr Pro Lys Glu Ile Lys Lys His Ile Asp Glu Tyr  
 65 70 75 80  
 Val Ile Gly Gln Glu Arg Ala Lys Lys Thr Ile Ala Val Ala Val Tyr  
 85 90 95  
 Asn His Tyr Lys Arg Ile Arg Ala Leu Leu His Asn Lys Gln Val Ser  
 100 105 110  
 Tyr Gly Lys Ser Asn Val Leu Leu Leu Gly Pro Thr Gly Ser Gly Lys  
 115 120 125  
 Thr Leu Ile Ala Lys Thr Leu Ala Lys Ile Leu Asp Val Pro Phe Thr  
 130 135 140  
 Ile Ala Asp Ala Thr Thr Leu Thr Glu Ala Gly Tyr Val Gly Glu Asp  
 145 150 155 160  
 Val Glu Asn Ile Val Leu Arg Leu Leu Gln Ala Ala Asp Tyr Asp Val  
 165 170 175  
 Ala Arg Ala Glu Arg Gly Ile Ile Tyr Ile Asp Glu Ile Asp Lys Ile  
 180 185 190  
 Gly Arg Thr Thr Ala Asn Val Ser Ile Thr Arg Asp Val Ser Gly Glu  
 195 200 205  
 Gly Val Gln Gln Ala Leu Leu Lys Ile Val Glu Gly Thr Thr Ala Asn  
 210 215 220  
 Val Pro Pro Lys Gly Gly Arg Lys His Pro Asn Gln Glu Tyr Ile Arg  
 225 230 235 240  
 Val Asn Thr Glu Asn Ile Leu Phe Ile Val Gly Gly Leu Ser Ser Thr  
 245 250 255

&lt;210&gt;911

&lt;211&gt;116

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;911

Cys Lys Tyr Leu Leu His Arg Ser Ser Cys Ile His Gly Ser Pro Leu  
 1 5 10 15  
 Ile Ile Arg Arg Thr Lys Gly Lys Arg His Ala Leu Pro His Ser Arg  
 20 25 30  
 Met Met Ile His Gln Pro Ser Gly Ile Ile Gly Thr Ser Ala Asp  
 35 40 45  
 Ile Gln Leu Gln Ala Ala Glu Ile Leu Thr Leu Lys Lys His Leu Ala  
 50 55 60  
 Asn Ile Leu Ser Glu Cys Thr Gly Gln Pro Val Glu Lys Ile Ile Glu  
 65 70 75 80  
 Asp Ser Glu Arg Asp Phe Phe Met Gly Ala Glu Glu Ala Ile Ser Tyr

85 90 95  
 Gly Leu Ile Asp Lys Val Val Thr Ser Ala Lys Glu Thr Asn Lys Asp  
 100 105 110  
 Thr Ser Ser Thr  
 115

&lt;210&gt;912

&lt;211&gt;119

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;912

Met Thr Leu Val Pro Tyr Val Val Glu Asp Thr Gly Arg Gly Glu Arg  
 1 5 10 15  
 Ala Met Asp Ile Tyr Ser Arg Leu Leu Lys Asp Arg Ile Val Met Ile  
 20 25 30  
 Gly Gln Glu Ile Thr Glu Pro Leu Ala Asn Thr Val Ile Ala Gln Leu  
 35 40 45  
 Leu Phe Leu Met Ser Glu Asp Pro Lys Lys Asp Ile Gln Ile Phe Ile  
 50 55 60  
 Asn Ser Pro Gly Gly Tyr Ile Thr Ala Gly Leu Ala Ile Tyr Asp Thr  
 65 70 75 80  
 Ile Arg Phe Leu Gly Cys Asp Val Asn Thr Tyr Cys Ile Gly Gln Ala  
 85 90 95  
 Ala Ser Met Gly Ala Leu Leu Leu Ser Ala Glu Leu Lys Glu Ser Val  
 100 105 110  
 Thr Leu Phe Pro Ile Ala Val  
 115

&lt;210&gt;913

&lt;211&gt;98

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;913

Lys Lys Lys Ser Glu Leu Ile Lys Glu Ala Glu Glu Asp Ala Thr Lys  
 1 5 10 15  
 Ala Leu Lys Leu Leu Phe Leu Thr His Lys Ile Phe Ser Asp Glu Lys  
 20 25 30  
 Leu Thr Ile Ser Arg Glu Glu Leu Gln Tyr Met Met Asp Val Cys Ser  
 35 40 45  
 Arg Glu Arg Phe Gly Gln Gln Pro Pro Lys Asp Ile Ser Asn Asp Thr  
 50 55 60  
 Leu Gln Glu Leu Val Met Ser Ala Arg Asp Arg Leu Thr Tyr Ser Lys  
 65 70 75 80  
 Ala Ile Glu His Val Leu Arg Lys Ala Glu Leu Leu Ala Ser Thr Pro  
 85 90 95  
 Ser Ala

&lt;210&gt;914

&lt;211&gt;240

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;914

Lys Ala Phe Pro Ala Ile Ser Asp Leu Pro Trp Glu Asn Leu Ser Leu  
 1 5 10 15  
 Pro Gln Glu Glu Ala Ala Ser Glu Ile Ser Asp Ser Asp Ile Glu Lys  
 20 25 30  
 Gly Leu Thr Asn Ile Gly Met Phe Phe Ala Thr Lys Thr Pro Val Glu  
 35 40 45  
 Arg Pro Ser Gln Glu Gly Asp Phe Ile Ser Ile Ser Leu His Val Ser  
 50 55 60  
 Lys Ser Asn Asp Glu Asn Ala Ser Ser Ala Ala Ile Phe Glu Asn Lys  
 65 70 75 80  
 Tyr Phe Lys Leu Ser Glu Glu Glu Met Thr Asp Ala Phe Lys Glu Lys  
 85 90 95  
 Phe Leu Gly Ile Ser Thr Gly His Arg Val Val Glu Thr Ile Thr Ser  
 100 105 110

Pro Glu Ile Gln Ser Phe Leu Arg Gly Asp Thr Leu Thr Phe Thr Val  
 115 120 125  
 Asn Ala Val Ile Glu Val Ser Ile Pro Glu Ile Asp Asp Glu Lys Ala  
 130 135 140  
 Arg Gln Leu Gln Ala Glu Ser Leu Asp Asp Leu Lys Ala Lys Leu Arg  
 145 150 155 160  
 Ile Gln Leu Glu Lys Gln Ala Lys Asp Lys Gln Leu Gln Lys Arg Phe  
 165 170 175  
 Ser Glu Ala Glu Asp Ala Leu Ala Met Leu Val Asp Phe Glu Leu Pro  
 180 185 190  
 Thr Ser Leu Leu Glu Glu Arg Ile Ser Leu Ile Thr Arg Glu Lys Leu  
 195 200 205  
 Leu Asn Ala Arg Leu Ile Gln Tyr Cys Ser Asp Glu Glu Leu Glu Lys  
 210 215 220  
 Arg Asn Gln Asn Leu Ser Arg Lys Gln Lys Lys Met Leu Gln Lys His  
 225 230 235 240

&lt;210&gt;915

&lt;211&gt;186

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;915

Val Gln Ala Ser Ser Pro Ala Phe Pro Phe Lys Ser Asn Lys Lys Gly  
 1 5 10 15  
 Cys Leu Val Pro Arg Ser Leu Ser Asn Glu Gln Phe Ser Val Asp Leu  
 20 25 30  
 Glu Glu Ser Pro Gly Cys Ile Val Ser Ala Leu Val Lys Val Ser Pro  
 35 40 45  
 Glu Val Leu Asn Lys Leu Asn Lys Gln Ala Leu Lys Lys Ile Lys Lys  
 50 55 60  
 Glu Ile Thr Leu Pro Gly Phe Arg Lys Gly Lys Ala Pro Asp Asp Val  
 65 70 75 80  
 Ile Ala Ser Arg Tyr Pro Thr Asn Val Arg Lys Glu Leu Gly Glu Leu  
 85 90 95  
 Val Thr Gln Asp Ala Tyr His Ala Leu Ser Thr Val Gly Asp Arg Arg  
 100 105 110  
 Pro Leu Ser Pro Lys Ala Val Arg Ser Asn Ser Ile Thr Gln Phe Asp  
 115 120 125  
 Leu Gln Glu Gly Ala Lys Val Glu Phe Ser Tyr Glu Lys Leu Ser Leu  
 130 135 140  
 Gln Phe Leu Ile Phe Leu Gly Lys Thr Phe Leu Tyr Leu Arg Lys Lys  
 145 150 155 160  
 Leu Leu Val Arg Phe Gln Ile Val Ile Ser Arg Arg Asp Ser Gln Thr  
 165 170 175  
 Leu Val Cys Ser Leu Gln Gln Lys Leu Leu  
 180 185

&lt;210&gt;916

&lt;211&gt;1075

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;916

Ala Asp Tyr Ile Ile His Ser Tyr Ser Arg Gly Glu Met Leu Asn Phe  
 1 5 10 15  
 Arg Lys Leu Arg Arg Asp Phe Ser Ala Asn Ile Leu Gln Asp Gly Lys  
 20 25 30  
 Lys Leu Phe Glu Gln Gly Ala Val Ile Asp Ala Lys Ile Leu Ser Met  
 35 40 45  
 Asn Gly Glu Thr Val Cys Ile Ser Ala Gln Val Arg Gly Leu Tyr Asp  
 50 55 60  
 Asn Ile Tyr Glu Cys Glu Ile Glu Val Asp Arg Ser Glu Ser Asp Thr  
 65 70 75 80  
 Val Asp Ser Asn Cys Asp Cys Ser Tyr Asn Tyr Asp Cys Gln His Ile  
 85 90 95  
 Val Ala Leu Leu Phe Tyr Leu Glu Gln Tyr Phe Asn Glu Met Val Val  
 100 105 110

Ala Tyr Ala Arg Ser Ala Asp Leu Glu Thr Asp His Glu Ile Asn Glu  
 115 120 125  
 Glu Val Lys Lys Glu Leu Lys Glu Thr Phe Val Ala Ala Ala Thr Lys  
 130 135 140  
 Glu Glu Glu Arg Lys Asp Arg Glu His Gln Lys Glu Ile Leu Arg Glu  
 145 150 155 160  
 Tyr Val His Ala Ala Asn Ala Leu Ser Ala Asn Pro Phe Phe Leu Pro  
 165 170 175  
 Leu Glu Tyr Leu Glu Lys Asp Ser Ala Glu Leu Ala Val Leu Phe Val  
 180 185 190  
 Ser Val Asn Glu Asp Thr Phe Ala Pro Ala Asn Gln Pro Ile Glu Phe  
 195 200 205  
 Gln Leu Val Leu Arg Leu Pro Cys Arg Ser Lys Pro Phe Tyr Ile Ser  
 210 215 220  
 Asn Ile Arg Thr Phe Leu Glu Gly Val Leu Tyr Gln Glu Pro Ile Val  
 225 230 235 240  
 Leu Asn Gly Arg Arg Phe Phe Phe Thr Met Gln Ser Phe Asn Ala Ser  
 245 250 255  
 Asp Arg Lys Leu Ile Asp Leu Leu Ile Arg Tyr Val Arg Tyr Pro Asn  
 260 265 270  
 His Thr Thr Glu Glu Lys Leu Leu Lys Ser Ala Tyr Leu Met Pro Pro  
 275 280 285  
 Ala Leu Gly Val Ile Leu Ala Lys Met Phe Glu His Gln Leu Ala Asp  
 290 295 300  
 Arg Gly Gly Gly Ser Leu Gly Glu Lys Glu Ser Phe Ser Gly Leu Phe  
 305 310 315 320  
 Cys Gly Asn Leu Glu Glu Pro Leu Cys Trp Ser Leu Thr Pro Ala Lys  
 325 330 335  
 Met Lys Phe Asn Leu Asp Phe Phe Asp Met Pro Tyr Lys Ala Leu Leu  
 340 345 350  
 Met Thr Pro Val Ile Leu Val Asp Asp Asp Glu Val Gln Pro Glu Gln  
 355 360 365  
 Thr Met Leu Leu Glu Ser Asp Ala Pro Gly Ile Ile His His Phe Val  
 370 375 380  
 Tyr His Arg Phe Ser Pro Gln Ile Lys Arg Ala His Leu Arg Ser Phe  
 385 390 395 400  
 Ser Arg Leu Arg Asp Ile Ala Ile Pro Glu Ala Leu Phe Gly Ser Phe  
 405 410 415  
 Arg Glu Asn Ala Leu Pro Val Phe Gln Glu Tyr Ala Glu Ile Ala Asn  
 420 425 430  
 Val His Leu Leu Asn Ser Phe Val Thr Leu Pro Tyr Val Asp Glu Val  
 435 440 445  
 Arg Ala Ile Cys Asp Met Ser Tyr Leu Asp Gly Glu Leu Glu Ala Lys  
 450 455 460  
 Leu His Phe Leu Tyr Gly Ser Leu Arg Val Pro Ala Ala Ser Leu Ala  
 465 470 475 480  
 Leu Gln Tyr Gln Asp Val Arg Ala Phe Ile Ser Asp Glu Gly Ile Leu  
 485 490 495  
 Ala Arg Asn Leu Val Glu Glu Arg Lys Met Leu Glu Glu Val Phe Ser  
 500 505 510  
 Gly Phe Ile Tyr Asp Glu Arg Asp Gly Ala Phe Arg Val Lys Ser Glu  
 515 520 525  
 Lys Lys Ile Val Glu Phe Met Thr Glu Thr Ile Pro Ala Asn Gln His  
 530 535 540  
 Arg Ile Thr Phe Asn Cys Pro Glu Asn Leu Ser Gly Gln Phe Ile Tyr  
 545 550 555 560  
 Asp Glu Thr Ile Phe Glu Leu Ser Phe Arg Glu Gly Ser Asp Ile Asn  
 565 570 575  
 Tyr Tyr Glu Ala Asp Leu Lys Val His Gly Leu Leu Lys Gly Val Pro  
 580 585 590  
 Leu Asp Leu Leu Trp Asp Cys Ile Ser Ala Lys Lys Arg Phe Leu Glu  
 595 600 605  
 Leu Pro Lys Ala Gly Gln Gln Ser Lys Gly Thr Arg Arg Gly Lys Val  
 610 615 620



Asn Ser Gly Lys Leu Pro Cys Ile Leu Val Leu Asp Leu Glu Lys Ile  
 625 630 635 640  
 Ala Pro Val Val Gln Ile Phe Asn Glu Ile Gly Phe Lys Val Leu Asp  
 645 650 655  
 Asp Leu Val Gln Lys Cys Pro Leu Trp Ser Leu Thr Gly Ile Ser Leu  
 660 665 670  
 Asp Gln Phe Glu Ala Leu Pro Val Asn Phe Ser Met Ser Glu Arg Leu  
 675 680 685  
 Ile Glu Ile Gln Lys Gln Ile Arg Gly Glu Ile Glu Phe Asp Phe Gln  
 690 695 700  
 Asp Val Pro Gln Gln Ile Gln Ala Thr Leu Arg Ser Tyr Gln Thr Glu  
 705 710 715 720  
 Gly Val His Trp Leu Glu Arg Leu Arg Lys Met His Leu Asn Gly Ile  
 725 730 735  
 Leu Ala Asp Asp Met Gly Leu Gly Lys Thr Leu Gln Ala Ile Ile Ala  
 740 745 750  
 Val Thr Gln Ser Lys Leu Glu Lys Gly Ser Gly Cys Ser Leu Ile Val  
 755 760 765  
 Cys Pro Thr Ser Leu Val Tyr Asn Trp Lys Glu Glu Phe Arg Lys Phe  
 770 775 780  
 Asn Pro Glu Phe Arg Thr Leu Val Ile Asp Gly Val Pro Ser Gln Arg  
 785 790 795 800  
 Arg Lys Gln Leu Thr Ala Leu Ala Asp Arg Asp Val Ala Ile Thr Ser  
 805 810 815  
 Tyr Asn Leu Leu Gln Lys Asp Val Glu Leu Tyr Lys Ser Phe Arg Phe  
 820 825 830  
 Asp Tyr Val Val Leu Asp Glu Ala His His Ile Lys Asn Arg Thr Thr  
 835 840 845  
 Arg Asn Ala Lys Ser Val Lys Met Ile Gln Ser Asp His Arg Leu Ile  
 850 855 860  
 Leu Thr Gly Thr Pro Ile Glu Asn Ser Leu Glu Glu Leu Trp Ser Leu  
 865 870 875 880  
 Phe Asp Phe Leu Met Pro Gly Leu Leu Ser Ser Tyr Asp Arg Phe Val  
 885 890 895  
 Gly Lys Tyr Ile Arg Thr Gly Asn Tyr Met Gly Asn Lys Ala Asp Asn  
 900 905 910  
 Met Val Ala Leu Lys Lys Lys Val Ser Pro Phe Ile Leu Pro Arg Met  
 915 920 925  
 Lys Glu Asp Val Leu Lys Asp Leu Pro Pro Val Ser Glu Ile Leu Tyr  
 930 935 940  
 His Cys His Leu Thr Glu Ser Gln Lys Glu Leu Tyr Gln Ser Tyr Ala  
 945 950 955 960  
 Ala Ser Ala Lys Lys Glu Leu Ser Arg Leu Val Lys Gln Glu Gly Phe  
 965 970 975  
 Glu Arg Ile His Ile His Val Leu Ala Thr Leu Thr Arg Leu Lys Gln  
 980 985 990  
 Ile Cys Cys His Pro Ala Ile Phe Ala Lys Asp Ala Pro Glu Pro Gly  
 995 1000 1005  
 Asp Ser Ala Lys Tyr Asp Met Leu Met Asp Leu Leu Ser Ser Leu Val  
 1010 1015 1020  
 Asp Ser Gly His Lys Thr Val Val Phe Ser Gln Tyr Thr Lys Met Leu  
 1025 1030 1035 1040  
 Gly Ile Ile Lys Lys Asp Leu Glu Ser Arg Gly Ile Pro Phe Val Tyr  
 1045 1050 1055  
 Leu Asp Gly Ser Thr Lys Asn Arg Leu Asp Leu Val Asn Gln Phe Asn  
 1060 1065 1070  
 Glu Asp Thr  
 1075  
 <210>917  
 <211>366  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>917  
 Met Ser Pro His Arg Asn Leu Phe Lys Leu Lys Asn Phe Ser Asn Arg

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1           5           10           15
Leu Tyr Asn Arg Ala Leu Gly Arg Phe Asp Lys Val Phe Asn Phe Phe
20           25           30
Ser Gly Asn Val Gly Ile Asp Leu Gly Thr Ala Asn Thr Leu Val Tyr
35           40           45
Val Arg Gly Arg Gly Ile Val Leu Ser Glu Pro Ser Val Val Ala Val
50           55           60
Asp Ala Gln Thr His Ala Val Leu Ala Val Gly His Lys Ala Lys Ala
65           70           75           80
Met Leu Gly Lys Thr Pro Arg Lys Ile Met Ala Val Arg Pro Met Lys
85           90           95
Asp Gly Val Ile Ala Asp Phe Glu Ile Ala Glu Gly Met Leu Lys Ala
100          105          110
Leu Ile Lys Arg Val Thr Pro Ser Arg Ser Val Phe Arg Pro Arg Ile
115          120          125
Leu Ile Ala Val Pro Ser Gly Ile Thr Gly Val Glu Lys Arg Ala Val
130          135          140
Glu Asp Ser Ala Leu His Ala Gly Ala Gln Glu Val Ile Leu Ile Glu
145          150          155          160
Glu Pro Met Ala Ala Ile Gly Val Asp Leu Pro Val His Glu Pro
165          170          175
Ala Ala Ser Met Ile Ile Asp Ile Gly Gly Thr Thr Glu Ile Ala
180          185          190
Ile Ile Ser Leu Gly Gly Ile Val Glu Ser Arg Ser Leu Arg Ile Ala
195          200          205
Gly Asp Glu Phe Asp Glu Cys Ile Ile Asn Tyr Met Arg Arg Thr Tyr
210          215          220
Asn Leu Met Ile Gly Pro Arg Thr Ala Glu Glu Ile Lys Ile Thr Ile
225          230          235          240
Gly Ser Ala Tyr Pro Leu Gly Asp Gln Glu Leu Glu Met Glu Val Arg
245          250          255
Gly Arg Asp Gln Val Ala Gly Leu Pro Ile Thr Lys Arg Ile Asn Ser
260          265          270
Val Glu Ile Arg Glu Cys Leu Ala Glu Pro Ile Gln Gln Ile Ile Glu
275          280          285
Cys Val Arg Leu Thr Leu Glu Lys Cys Pro Pro Glu Leu Ser Ala Asp
290          295          300
Leu Val Glu Arg Gly Met Val Leu Ala Gly Gly Gly Ala Leu Ile Lys
305          310          315          320
Gly Leu Asp Lys Ala Leu Ser Lys Asn Thr Gly Leu Ser Val Ile Thr
325          330          335
Ala Pro His Pro Leu Leu Ala Val Cys Leu Gly Thr Gly Lys Ala Leu
340          345          350
Glu His Leu Asp Gln Phe Lys Lys Arg Lys Gly Asn Leu Val
355          360          365

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&lt;210&gt;918

&lt;211&gt;579

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;918

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Ile Asn Asp Ser Glu Asp Ile Arg Leu Cys Asp Gly Ser Asp Thr Glu
1           5           10           15
Tyr Asp Glu Leu Cys Thr Leu Met Glu Ser Thr Gly Thr Met Ile Arg
20           25           30
Leu Asn Pro Glu Phe His Pro Asn Cys Phe Leu Val Arg Ser Ser Ala
35           40           45
Asp Asp Val Ala Arg Val Glu Gln Phe Thr Phe Ile Cys Thr Ser Thr
50           55           60
Glu Ala Glu Ala Gly Pro Thr Asn Asn Trp Arg Asp Pro Gln Glu Met
65           70           75           80
Arg Arg Glu Leu His Gln Leu Phe Arg Gly Cys Met Gln Gly Arg Thr
85           90           95
Leu Tyr Ile Val Pro Phe Cys Met Gly Pro Leu Asp Ser Pro Phe Ser
100          105          110

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Ile Val Gly Val Glu Leu Thr Asp Ser Pro Tyr Val Val Cys Ser Met
    115                      120                      125
Lys Ile Met Thr Arg Met Gly Asp Asp Val Leu Arg Ser Leu Gly Thr
    130                      135                      140
Ser Gly Lys Phe Leu Lys Cys Leu His Ser Val Gly Lys Pro Leu Ser
    145                      150                      155                      160
Pro Gly Glu Ala Asp Val Ser Trp Pro Cys Asn Pro Lys Ser Met Arg
    165                      170                      175
Ile Val His Phe Gln Asp Asp Ser Ser Val Met Ser Phe Gly Ser Gly
    180                      185                      190
Tyr Gly Gly Asn Ala Leu Leu Gly Lys Lys Cys Val Ala Leu Arg Leu
    195                      200                      205
Ala Ser Tyr Met Ala Lys Ser Gln Gly Trp Leu Ala Glu His Met Leu
    210                      215                      220
Ile Ile Gly Ile Thr Asn Pro Glu Gly Lys Lys Lys Tyr Phe Ser Ala
    225                      230                      235                      240
Ser Phe Pro Ser Ala Cys Gly Lys Thr Asn Leu Ala Met Leu Met Pro
    245                      250                      255
Lys Leu Pro Gly Trp Lys Ile Glu Cys Ile Gly Asp Asp Ile Ala Trp
    260                      265                      270
Ile Arg Pro Gly Arg Asp Gly Arg Leu Tyr Ala Val Asn Pro Glu Tyr
    275                      280                      285
Gly Phe Phe Gly Val Ala Pro Gly Thr Ser Glu Arg Thr Asn Pro Asn
    290                      295                      300
Ala Leu Ala Thr Cys Arg Ser Asn Ser Ile Phe Thr Asn Val Ala Leu
    305                      310                      315                      320
Thr Ala Asp Gly Asp Val Trp Trp Glu Gly Leu Thr Glu Gln Pro Pro
    325                      330                      335
Glu Pro Leu Thr Asp Trp Leu Gly Lys Pro Trp Lys Pro Gly Gly Ser
    340                      345                      350
Pro Ala Ala His Pro Asn Ser Arg Phe Thr Ala Pro Leu Arg Gln Cys
    355                      360                      365
Pro Ser Leu Asp Pro Glu Trp Asn Ser Pro Gln Gly Val Pro Leu Asp
    370                      375                      380
Ala Ile Ile Phe Gly Gly Arg Arg Ser Glu Thr Ile Pro Leu Val Tyr
    385                      390                      395                      400
Glu Ala Leu Ser Trp Glu His Gly Val Thr Ile Gly Ala Gly Met Ser
    405                      410                      415
Ser Thr Thr Thr Ala Ala Ile Val Gly Gln Leu Gly Lys Leu Arg His
    420                      425                      430
Asp Pro Phe Ala Met Leu Pro Phe Cys Gly Tyr Asn Met Ala Tyr Tyr
    435                      440                      445
Phe Gln His Trp Leu Ser Phe Ala Glu Asn Arg Ser Leu Lys Leu Pro
    450                      455                      460
Lys Ile Phe Gly Val Asn Trp Phe Arg Lys Asn Asn Gln Gly Glu Phe
    465                      470                      475                      480
Leu Trp Pro Gly Phe Ser Glu Asn Leu Arg Val Leu Glu Trp Ile Phe
    485                      490                      495
Gln Arg Thr Asp Gly Leu Glu Asp Ile Ala Glu Arg Thr Pro Ile Gly
    500                      505                      510
Tyr Leu Pro Asn Ile Gln Lys Phe Asn Leu Asn Gly Leu Asn Leu Asp
    515                      520                      525
Leu Gln Thr Val Gln Glu Leu Phe Ser Val Asp Ala Glu Gly Trp Leu
    530                      535                      540
Ala Glu Val Glu Asn Ile Gly Glu Tyr Leu Lys Ile Phe Gly Ser Asp
    545                      550                      555                      560
Cys Pro Gln Gln Ile Thr Asp Glu Leu Leu Arg Ile Lys Ser Glu Leu
    565                      570                      575
Lys Glu Lys

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&lt;210&gt;919

&lt;211&gt;150

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;919

Arg Lys Gly Ala Val Asn Arg Glu Phe Gly Trp Ala Ala Gly Leu Pro  
 1 5 10 15  
 Pro Gly Phe Gln Gly Phe Pro Ser Gln Ser Val Lys Gly Ser Gly Gly  
 20 25 30  
 Cys Ser Val Asn Pro Ser His Gln Thr Ser Pro Ser Ala Val Lys Ala  
 35 40 45  
 Thr Phe Val Lys Ile Glu Phe Asp Leu Gln Val Ala Lys Ala Leu Gly  
 50 55 60  
 Phe Val Arg Ser Glu Val Pro Gly Ala Thr Pro Lys Asn Pro Tyr Ser  
 65 70 75 80  
 Gly Phe Thr Ala Tyr Asn Leu Pro Ser Arg Pro Gly Arg Ile Gln Ala  
 85 90 95  
 Ile Ser Ser Pro Ile His Ser Ile Phe Gln Pro Gly Ser Leu Gly Ile  
 100 105 110  
 Asn Ile Ala Lys Phe Val Leu Pro Gln Ala Leu Gly Asn Glu Ala Glu  
 115 120 125  
 Lys Tyr Phe Phe Phe Pro Ser Gly Leu Val Ile Pro Ile Ile Asn Met  
 130 135 140  
 Cys Ser Ala Ser Gln Pro  
 145 150

&lt;210&gt;920

&lt;211&gt;780

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;920

Ile Lys Leu Arg Ile Ile Asp Tyr Tyr Tyr Leu Ile Asn Thr Val Thr  
 1 5 10 15  
 Leu Gln Pro Ser Tyr Ile Asn Phe Thr Pro Asn Val Thr Thr Ala Leu  
 20 25 30  
 Ser Gly Gly Lys Ile Asp Thr Ser Ala Ile Glu Leu Ser Cys Ser Ala  
 35 40 45  
 Leu Phe Phe Gln Glu Leu Gln Asp Lys Ala Gln Gly Leu Lys His Ala  
 50 55 60  
 Leu Gly Leu Val Gln Glu Leu Ser Ala Glu Ala Leu Arg Pro Ala Gln  
 65 70 75 80  
 Val Gln Thr Ser Ile Ser Tyr Leu Pro Thr Glu Glu Ser Ser Arg Pro  
 85 90 95  
 Gly Ile Ser Ala Gly Ile Ile Asp Arg Thr Met Pro Thr Phe Thr Asp  
 100 105 110  
 Asp Glu Val Lys Ala Ile Leu Gln Asn Pro Asn Phe Glu Thr Ser Lys  
 115 120 125  
 Ile Phe Val Glu Gly Leu Asp Lys Val Phe Lys Ser Tyr Leu Asp Ser  
 130 135 140  
 Val Thr Pro Pro Glu Gly Ile Asp Pro Ser Asn Pro Glu Ser Ala Ile  
 145 150 155 160  
 Ile Leu Asn Tyr Ile Thr Leu Leu Asn Asn Leu Lys Pro Lys Phe Ala  
 165 170 175  
 Ala Gly Ser Thr Pro Thr Asp Ala Asp Tyr Asn Ala Leu Tyr Ala Leu  
 180 185 190  
 Pro Gly Asp Phe Val Lys Glu Ile Glu Ala Leu Lys Ala Ala Asp Ala  
 195 200 205  
 Pro Pro Lys Ser Lys Val His Ala Phe Trp Gln Glu Ile Met Thr Ile  
 210 215 220  
 Tyr Asn Asn Met Gln Val Leu Ser Tyr Pro Val Thr Asp Tyr Leu Asn  
 225 230 235 240  
 Val Gln Ile Ala Asp Leu Ser Leu Asn Ile Thr Ala Ala Gln Glu Val  
 245 250 255  
 Gln Gln Tyr Leu Lys Asn Phe Tyr Ser Ile Leu Lys Asp Ile Leu Asn  
 260 265 270  
 Pro Gly Trp Thr Asp Pro Gln Ala Thr His Tyr Pro Ala Asp Ala Glu  
 275 280 285  
 Tyr Asn Ala Arg Asp Ala Gly Val Ile Gln Ser Leu Leu Asn Leu Ser  
 290 295 300

Gly Asn Tyr Arg Gln Leu Thr Glu Asn Met Leu Pro Asn Thr Asp Thr  
 305 310 315 320  
 Ser Leu Pro Gln Glu Ile Ile Ala Gln Ile Arg Ser Phe Gln Asn Gly  
 325 330 335  
 Val Asn Gly Thr Ile Ile Ala Ser Asn Thr Leu Leu Pro Thr Thr Met  
 340 345 350  
 Arg Leu Asp Thr Leu Leu Gly Val Ile Tyr Thr Tyr Gln Cys Cys Ala  
 355 360 365  
 Thr Ile Phe Gly Met Ser Tyr Gly Thr Ser Thr Pro Ala Lys Gln Asn  
 370 375 380  
 Tyr Ile Asp Ala Ile Asn Gln Glu Lys Ser Tyr Trp Gln Ala Arg Ala  
 385 390 395 400  
 Asn Gly Phe Asp Val Thr Ser Asp Gln Val Phe Asp Gln Phe Ala Thr  
 405 410 415  
 Asn Ile Gln Ser Gly Thr Ser Tyr Arg Gly Ile Asp Leu Phe Lys Asn  
 420 425 430  
 Asn Lys Val Asn Glu Ile Asn Pro Ile Phe Leu Ser Gln Ala Ala Ser  
 435 440 445  
 Phe Leu Arg Tyr Pro Tyr Asn Leu Met Ser Arg Ser Met Tyr Gln Thr  
 450 455 460  
 Ile Glu Asp Ala Ala Asn Arg Ser Ile Thr Ala Leu Asp Gly Leu Ile  
 465 470 475 480  
 Ser Gly Trp Ser Thr Gln Ile Ala Thr Phe Gln Thr Gln Lys Asn Ser  
 485 490 495  
 Leu Asp Pro Ser Leu Leu Lys Tyr Phe Asp Thr Met Lys Ala Asn Lys  
 500 505 510  
 Glu Ser Phe Val Thr Thr Ala Pro Leu Gln Met Val Tyr Ser Ser Leu  
 515 520 525  
 Met Leu Asp Lys Tyr Leu Pro Thr Gln Gln Asn Val Ile Ala Ser Leu  
 530 535 540  
 Gly Ile Gln Met Thr Tyr Ser Asn Lys Ala Ala Lys Tyr Leu Asn Glu  
 545 550 555 560  
 Leu Ile Lys Glu Ile Thr Thr Phe Gln Ser Ala Asp Ile Tyr Tyr Ser  
 565 570 575  
 Leu Ser Ile Tyr Leu Lys Gln Met Asn Leu Gln Ala Val Ala Asp Pro  
 580 585 590  
 Ile Gly Lys Ala Val Gly Val Leu Asn Asp Glu Lys Thr Arg Ala Met  
 595 600 605  
 Ala Asp Ile Thr Arg Cys Asn Lys Ile Lys Ala Ala Ile Asp Lys Met  
 610 615 620  
 Leu Val Glu Ile Lys Ala Asp Ala Glu Leu Ser Lys Ser Gln Ile Arg  
 625 630 635 640  
 Glu Leu Val Asp Thr Leu Thr Asn Phe Lys Ser Gln Ser Asp Asp Leu  
 645 650 655  
 Ile Arg Asn Leu Ser Cys Leu Leu Gly Phe Leu Ser Gly Leu Thr Leu  
 660 665 670  
 Lys Ala Val Asn Asp Pro Asn Ala Thr Tyr Glu Ala Phe Thr Ala Glu  
 675 680 685  
 Ile Phe Thr Glu Pro Phe Asn Asn Trp Lys Arg Gln Leu Ala Thr Phe  
 690 695 700  
 Glu Ser Phe Val Ile Gln Gly Gly Gln Asn Gly Ile Thr Pro Gly Gly  
 705 710 715 720  
 Gln Gln Gln Leu Leu Gln Ala Met Glu Ser Ser Gln Gln Asp Phe Ser  
 725 730 735  
 Thr Phe Asn Gln Asn Gln Gln Leu Ala Leu Gln Leu Glu Ser Ser Ala  
 740 745 750  
 Met Gln Gln Glu Trp Thr Leu Val Ser Ala Ala Leu Ala Leu Leu Asn  
 755 760 765  
 Gln Met Val Ser Lys Ile Ala Arg Arg Ile Lys Ser  
 770 775 780

&lt;210&gt;921

&lt;211&gt;391

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;921

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Asn Ile Met His Pro Lys Ile Glu Lys Arg Asn Ser Leu Pro Leu Thr
 1           5           10           15
Ala Val Ala Pro Val Phe Glu Glu Ser Tyr His Pro Ser Val Ala Thr
          20           25           30
Thr Val Asp Tyr Val Asp Ala Thr Leu Ser Arg His Leu Thr Val
      35           40           45
Leu Lys Asp Val Ile Lys Glu Ala Arg Asn Leu Asp Leu Gly Lys Ala
      50           55           60
Phe Leu Thr Ser Met Lys Gln Gly Phe Ile Asn Thr Gly Thr Glu Leu
      65           70           75           80
Ala Ile Ile Gln Ala Ser Leu Ala Asp Gln Ser Ser Arg Glu Ser Arg
          85           90           95
Lys Lys Glu Glu Lys Ile Phe His Gln His Leu Gly Lys Ala Ala Pro
          100          105          110
Gln Ala Ala Thr Ala Thr Ser Gly Val Gln Pro Thr Ala Asp Pro Val
          115          120          125
Ala Asp Lys Met Pro Leu Gln Ser Ala Phe Ala Tyr Val Leu Leu Asp
          130          135          140
Lys Tyr Ile Pro Ala Gln Glu Glu Ala Leu Tyr Ala Leu Gly Arg Glu
          145          150          155          160
Leu Asn Leu Ser Gly Tyr Ala Gln Asn Leu Phe Ser Pro Leu Leu Asp
          165          170          175
Met Ile Lys Ser Phe Asn Ser Ala Pro Ile Asn Tyr Asn Leu Gly Ser
          180          185          190
Tyr Ile Ser Gln Thr Ser Gly Thr Ala Asn Phe Ala Tyr Gly Tyr Glu
          195          200          205
Met Ile Leu Ser Arg Tyr Asn Asn Glu Val Ser Gln Cys Arg Leu Asp
          210          215          220
Ile Ala Ser Thr Val Lys Ala Lys Ala Ala Leu Ala Asn Met Ser Ala
          225          230          235          240
Ser Val Lys Ala Asn Val Ser Leu Thr Asp Ala Gln Lys Lys Gln Ile
          245          250          255
Glu Asp Ile Ile Ala Ser Tyr Thr Lys Ser Leu Asp Val Ile His Thr
          260          265          270
Gln Leu Thr Asp Val Met Thr Asn Leu Ala Ser Ile Thr Phe Val Pro
          275          280          285
Gly Leu Asn Lys Tyr Asp Pro Ser Tyr Arg Ile Val Gly Gly Asp Leu
          290          295          300
Ser Ile Ile Ala Leu Gln Asn Asp Glu Lys Val Leu Val Asp Gly Lys
          305          310          315          320
Val Asp Ile Thr Thr Ala Val Asn Glu Gly Gly Leu Leu Asn Phe Phe
          325          330          335
Thr Thr Val Leu Thr Asp Val Gln Asn Tyr Gly Asp Leu Ala Gln Thr
          340          345          350
Gln Gln Leu Met Leu Asp Leu Glu Leu Lys Ala Met Gln Gln Gln Trp
          355          360          365
Ser Leu Val Ser Ala Ser Leu Lys Leu Leu Asn Gly Met Tyr Thr Thr
          370          375          380
Val Ile Ser Gly Phe Lys Asn
          385          390

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&lt;210&gt;922

&lt;211&gt;348

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;922

```

Gly Pro Phe Asp Met Asn Ser Lys Met Leu Lys His Leu Arg Leu Ala
 1           5           10           15
Thr Leu Ser Phe Ser Met Phe Phe Gly Ile Val Ser Ser Pro Ala Val
          20           25           30
Tyr Ala Leu Gly Ala Gly Asn Pro Ala Ala Pro Val Leu Pro Gly Val
          35           40           45
Asn Pro Glu Gln Thr Gly Trp Cys Ala Phe Gln Leu Cys Asn Ser Tyr
          50           55           60

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Asp Leu Phe Ala Ala Leu Ala Gly Ser Leu Lys Phe Gly Phe Tyr Gly  
 65 70 75 80  
 Asp Tyr Val Phe Ser Glu Ser Ala His Ile Thr Asn Val Pro Val Ile  
 85 90 95  
 Thr Ser Val Thr Ser Gly Thr Gly Thr Thr Pro Thr Ile Thr Ser  
 100 105 110  
 Thr Thr Lys Asn Val Asp Phe Asp Leu Asn Asn Ser Ser Ile Ser Ser  
 115 120 125  
 Ser Cys Val Phe Ala Thr Ile Ala Leu Gln Glu Thr Ser Pro Ala Ala  
 130 135 140  
 Ile Pro Leu Leu Asp Ile Ala Phe Thr Ala Arg Val Gly Gly Leu Lys  
 145 150 155 160  
 Gln Tyr Tyr Arg Leu Pro Leu Asn Ala Tyr Arg Asp Phe Thr Ser Asn  
 165 170 175  
 Pro Leu Asn Ala Glu Ser Glu Val Thr Asp Gly Leu Ile Glu Val Gln  
 180 185 190  
 Ser Asp Tyr Gly Ile Val Trp Gly Leu Ser Leu Gln Lys Val Leu Trp  
 195 200 205  
 Lys Asp Gly Val Ser Phe Val Gly Val Ser Ala Asp Tyr Arg His Gly  
 210 215 220  
 Ser Ser Pro Ile Asn Tyr Ile Ile Val Tyr Asn Lys Ala Asn Pro Glu  
 225 230 235 240  
 Ile Tyr Phe Asp Ala Thr Asp Gly Asn Leu Ser Tyr Lys Glu Trp Ser  
 245 250 255  
 Ala Ser Ile Gly Ile Ser Thr Tyr Leu Asn Asp Tyr Val Leu Pro Tyr  
 260 265 270  
 Ala Ser Val Ser Ile Gly Asn Thr Ser Arg Lys Ala Pro Ser Asp Ser  
 275 280 285  
 Phe Thr Glu Leu Glu Lys Gln Phe Thr Asn Phe Lys Phe Lys Ile Arg  
 290 295 300  
 Lys Ile Thr Asn Phe Asp Arg Val Asn Phe Cys Phe Gly Thr Thr Cys  
 305 310 315 320  
 Cys Ile Ser Asn Asn Phe Tyr Tyr Ser Val Glu Gly Arg Trp Gly Tyr  
 325 330 335  
 Gln Arg Ala Ile Asn Ile Thr Ser Gly Leu Gln Phe  
 340 345

&lt;210&gt;923

&lt;211&gt;334

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;923

Met Lys Gln His Ile Gly Tyr Leu Gly Met Gly Ile Trp Gly Phe Cys  
 1 5 10 15  
 Leu Ala Ser Leu Leu Ala Asn Lys Gly Tyr Pro Val Val Ala Trp Ser  
 20 25 30  
 Arg Asn Pro Asp Leu Ile Lys Gln Leu Gln Glu Glu Arg Arg His Pro  
 35 40 45  
 Leu Ala Pro Asn Val Val Ile Ser Pro Asn Leu Ser Phe Thr Thr Asp  
 50 55 60  
 Met Lys Glu Ala Ile His Asn Ala Phe Met Ile Val Glu Gly Val Thr  
 65 70 75 80  
 Ser Ala Gly Ile Arg Pro Val Ala Glu Gln Leu Lys Gln Ile Thr Asp  
 85 90 95  
 Leu Ser Val Pro Phe Val Ile Thr Ser Lys Gly Ile Glu Gln Asn Thr  
 100 105 110  
 Gly Leu Leu Leu Ser Glu Ile Met Leu Glu Val Leu Gly Asp Ser Val  
 115 120 125  
 Thr Pro Tyr Leu Gly Tyr Leu Ser Gly Pro Ser Ile Ala Lys Glu Val  
 130 135 140  
 Leu Asn Gly Ser Pro Cys Ser Val Val Val Ser Ala Tyr Asp Ser Gln  
 145 150 155 160  
 Thr Leu Lys Gln Ile His Glu Ala Phe Ser Leu Pro Thr Phe Arg Val  
 165 170 175  
 Tyr Pro Asn Thr Asp Ile Lys Gly Ala Ala Leu Gly Gly Ala Leu Lys

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      180      185      190
Asn Val Ile Ala Ile Ala Cys Gly Ile Ala Glu Gly Leu Ser Phe Gly
      195      200      205
Asn Asn Ala Lys Ala Gly Leu Val Thr Arg Gly Leu His Glu Met Arg
      210      215      220
Lys Leu Ala Ala Ile Met Asp Cys Lys Pro Glu Thr Leu Asn Gly Leu
225      230      235      240
Ala Gly Leu Gly Asp Leu Cys Val Thr Cys Phe Ser Glu Ser Ser Arg
      245      250      255
Asn Leu Arg Phe Gly His Leu Leu Ala Gln Gly Leu Thr Phe Glu Gln
      260      265      270
Ala Lys Ala Lys Ile Gly Met Val Val Glu Gly Ala Tyr Thr Ala Leu
      275      280      285
Ser Ala Tyr Gln Val Ala Lys His His Lys Ile Asp Met Pro Ile Thr
290      295      300
Thr Gly Ile Tyr Arg Val Leu Tyr Glu Asn Leu Asp Leu Lys Glu Gly
305      310      315      320
Ile Ala Leu Leu Leu Gln Arg Asn Thr Lys Glu Glu Phe Leu
      325      330

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&lt;210&gt;924

&lt;211&gt;461

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;924

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Met Thr Glu Ser Val Tyr Ser Pro Ser Ala Met His Val Asn Ser Leu
  1      5      10      15
Ala Asp Lys Leu Lys Ala Ile Asn Gln Glu His Ile Leu Asp Ile Trp
      20      25      30
Pro Ser Leu Ser Pro Lys Gln Gln Gln Arg Leu Phe Gln Gln Leu Thr
      35      40      45
Ser Val Asp Ile Asp Phe Phe Arg Lys Gln Gln Gln Leu Leu Ser Ser
      50      55      60
Pro Thr Ala Ile Leu Lys Asp Phe His Pro Ile Thr Ser Phe Ala Ser
      65      70      75      80
Ser Gly Glu Asp Pro Glu Arg Ala His Ala Gly Thr Thr Leu Leu Lys
      85      90      95
Glu Lys Lys Val Ala Cys Val Val Leu Ala Gly Gly Gln Gly Ser Arg
      100      105      110
Leu Lys Cys Asp Gly Pro Lys Gly Leu Phe Pro Val Ser Pro Ile Lys
      115      120      125
Lys Lys Pro Leu Phe Gln Leu Val Ala Glu Lys Val Arg Ala Ala Ser
      130      135      140
Lys Leu Ala Gly Gln Pro Leu Pro Leu Ala Phe Met Thr Ser Pro Leu
145      150      155      160
Asn Thr Arg Gln Thr Arg Ser Phe Phe Glu Ser Asn Asp Tyr Phe His
      165      170      175
Leu Asp Pro Asn Gln Val Asp Phe Phe Cys Gln Pro Leu Trp Pro Leu
      180      185      190
Leu Thr Leu Ser Gly Asp Leu Phe Leu Glu Asp Met Asp Thr Leu Ala
      195      200      205
Leu Gly Pro Asn Gly Asn Gly Cys Ile Ala Thr Leu Leu Tyr Thr Ser
      210      215      220
Gly Val Trp Glu Lys Trp Lys Asn Ala Gly Ile Glu Met Val Ser Val
225      230      235      240
Ile Pro Ile Asp Asn Pro Leu Ala Leu Pro Phe Asp Val Glu Leu Cys
      245      250      255
Gly Phe His Ala Met Ser Asn Asn Glu Val Thr Ile Lys Ala Ala Leu
      260      265      270
Arg Gln Thr Ala Ile Glu Asp Val Gly Ile Leu Val Lys Ser His Asp
      275      280      285
Ser Gly Lys Thr Ser Val Ile Glu Tyr Ser Glu Ile Pro Gln Asn Glu
290      295      300
Arg Phe Ala Leu Asn Glu Asp Gly Lys Leu Lys Tyr Cys Leu Ala Asn
305      310      315      320

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Ile Gly Leu Tyr Cys Leu Ser Met Asp Phe Ile Arg His Ala Ala Tyr
      325      330      335
Gln Gln Leu Pro Leu Tyr Lys Val His Lys His Ala Lys Gln Leu Gly
      340      345      350
His Thr Ser Leu Asn Glu Lys Asn Ala Trp Lys Phe Glu Glu Phe Ile
      355      360      365
Phe Asp Leu Phe Cys Tyr Ser Asp His Cys Gln Thr Leu Val Tyr Pro
      370      375      380
Arg Gln Glu Cys Phe Ala Pro Leu Lys Asn Leu Glu Gly Asn His Ser
      385      390      395      400
Pro Asp Thr Val Arg Gln Ala Leu Ser Asp Arg Glu Arg Gln Leu Phe
      405      410      415
His Lys Val Thr Gly Lys Lys Leu Ser Pro Asn Thr Thr Phe Glu Leu
      420      425      430
Glu Ala Asp Phe Tyr Tyr Pro Ser Thr Ser Thr Ser Leu His Trp Glu
      435      440      445
Asn Lys Ala Phe Phe Glu Glu Pro Phe Phe Glu Ala Ser
      450      455      460
<210>925
<211>433
<212>PRT
<213>Chlamydia pneumoniae
<400>925
Met Asn His Leu Asn Lys Glu Lys Leu His Ile His Asn Trp Gln Pro
  1      5      10      15
Tyr Arg Ala Cys Gly Leu Leu Ser Lys Val Ser Gly Asn Leu Ile Glu
      20      25      30
Val Asp Gly Leu Ser Ala Cys Leu Gly Glu Leu Cys Lys Ile Ser Ser
      35      40      45
Thr Lys Asp Pro Asn Leu Leu Ala Glu Val Ile Gly Phe His Asn His
      50      55      60
Thr Thr Leu Leu Met Ser Leu Ser Pro Leu His Ser Val Ala Leu Gly
      65      70      75      80
Thr Glu Val Leu Pro Leu Arg Arg Pro Pro Ser Leu His Leu Ser Asp
      85      90      95
His Leu Leu Gly Arg Val Leu Asp Ala Phe Gly Asn Pro Ile Asp Lys
      100      105      110
Lys Glu Asp Leu Pro Lys Thr His Arg Lys Pro Leu Leu Ser Leu Pro
      115      120      125
Pro Ser Pro Met Met Arg Gln Pro Ile Asp Gln Ile Phe Pro Thr Gly
      130      135      140
Ile Lys Ala Ile Asp Ala Phe Leu Thr Leu Gly Lys Gly Gln Arg Ile
      145      150      155      160
Gly Val Phe Ser Glu Pro Gly Ser Gly Lys Ser Ser Leu Leu Ser Ala
      165      170      175
Ile Ala Leu Gly Ser Lys Ser Thr Ile Asn Val Ile Ala Leu Ile Gly
      180      185      190
Glu Arg Gly Arg Glu Val Arg Glu His Ile Glu Lys His Ser Asn Ala
      195      200      205
Leu Lys Gln Gln Arg Thr Ile Ile Ala Ala Pro Ala His Glu Thr
      210      215      220
Ala Pro Thr Lys Val Ile Ala Gly Arg Ala Ala Met Thr Ile Ala Glu
      225      230      235      240
Tyr Phe Arg Glu Gln Gly His Glu Val Leu Phe Ile Met Asp Ser Leu
      245      250      255
Ser Arg Trp Ile Ala Ala Leu Gln Glu Val Ala Leu Ala Arg Gly Glu
      260      265      270
Thr Leu Ser Ala His Gln Tyr Ala Ala Ser Val Phe His His Val Ser
      275      280      285
Glu Phe Thr Glu Arg Ala Gly Asn Asn Asp Lys Gly Ser Ile Thr Ala
      290      295      300
Leu Tyr Ala Ile Leu Tyr Tyr Pro Lys His Pro Asp Ile Phe Thr Asp
      305      310      315      320
Tyr Leu Lys Ser Leu Leu Asp Gly His Phe Phe Leu Thr Ser Gln Gly

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325 330 335  
 Lys Ala Leu Ala Ser Pro Pro Ile Asp Ile Leu Ser Ser Leu Ser Arg  
 340 345 350  
 Ser Ala Gln Ala Leu Ala Leu Pro His His Tyr Ala Ala Glu Arg  
 355 360 365  
 Leu Arg Ser Leu Leu Lys Val Tyr Asn Glu Ala Leu Asp Ile Ile His  
 370 375 380  
 Leu Gly Ala Tyr Thr Pro Gly Gln Asp Glu Glu Leu Asp Lys Ala Val  
 385 390 395 400  
 Lys Leu Leu Pro Ser Ile Lys Ala Phe Leu Ala Gln Pro Leu Ser Ser  
 405 410 415  
 Tyr Cys Tyr Leu Asp Asn Thr Leu Lys Gln Leu Glu Ala Leu Ala Asp  
 420 425 430  
 Ser

&lt;210&gt;926

&lt;211&gt;91

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;926

Met Ile His Ala Val Lys Thr Glu Ser Arg Trp Ser Ser Ser Ser Leu  
 1 5 10 15  
 Ile Ser Cys Leu Arg Ile Pro Leu Gly Val Ser Ile Leu Asn Pro Asp  
 20 25 30  
 Arg Leu Gln Glu Val Ser Gly Lys Asn Ser Ala Cys Leu Ile Met Gly  
 35 40 45  
 Ser Ser Trp Val Glu Ile Gln Ser Val Ser Val Leu Arg Ser Ser Gly  
 50 55 60  
 Trp Arg Asn Thr Leu Met Gly Val Arg Asp Leu Asn Val Val Cys Leu  
 65 70 75 80  
 Trp Ser Ala Val Glu Arg Ser Arg Ala Ser Ser  
 85 90

&lt;210&gt;927

&lt;211&gt;266

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;927

Met Thr Leu Pro Leu Glu Pro Met Ile Phe Trp Ser Ser Leu Ser Ala  
 1 5 10 15  
 Lys Val Met Lys Lys Phe Leu Thr Pro His Cys Ala Gly Thr Phe Ser  
 20 25 30  
 Glu Glu Asp Ala Glu Ala Lys Glu Ala His Leu Val Thr Gly Lys Gln  
 35 40 45  
 Gly His Arg Leu Met Gly Asn Cys Val Thr Phe Tyr Trp Leu Val Asp  
 50 55 60  
 Lys Lys Asn Gly Val Ile Leu Asp Ala Lys Phe Gln Tyr Phe Gly His  
 65 70 75 80  
 Pro Tyr Leu Ile Pro Leu Ala Glu Ala Val Cys Asn Leu Val Cys Gly  
 85 90 95  
 Lys Ser Tyr Ser Glu Ala Tyr Lys Met Thr Leu Asp Asp Ile Asp Lys  
 100 105 110  
 Ser Leu Arg Val His Ala His Gln Pro Ala Leu Pro Glu Asp Ser Ile  
 115 120 125  
 Ser Leu Tyr His Phe Val Ile Asp Ala Leu Asp Thr Ala Val Glu Gln  
 130 135 140  
 Cys Leu Glu Ile Pro Leu Glu Asp Gly Ser Leu Pro Leu Gln Asn Ser  
 145 150 155 160  
 Pro Met Asn Leu Asp Phe Glu Asp Ala Asn Pro Tyr Ser Gln Ser Asp  
 165 170 175  
 Trp Glu Ala Leu Thr His Glu Gln Lys Leu Tyr Ala Leu Arg Ala Thr  
 180 185 190  
 Ile Ala Glu Lys Ile Gly Pro Tyr Ile Ala Met Asp Gly Gly Glu Val  
 195 200 205  
 Thr Val Glu Ser Leu Glu Asn Phe Ile Val Thr Ile Ala Tyr Ser Gly

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      210      215      220
Asn Cys Ser Gly Cys Pro Ser Ser Leu Gly Ser Thr Leu Asn Ser Ile
225      230      235      240
Gly Gln Leu Leu Arg Ala Tyr Ile Tyr Pro Glu Leu Gln Val Lys Val
      245      250      255
Asp Glu Ser Ser Leu Asn Leu Ser His Pro
      260      265

<210>928
<211>401
<212>PRT
<213>Chlamydia pneumoniae
<400>928
Gly Arg Gly Thr Ile Phe Arg Ile Thr Asp Gly Lys Thr Ser Cys Ile
  1      5      10      15
Ser Met Glu Lys Pro Gln Asn Arg Lys Ala Pro Arg Ile Phe Trp Leu
      20      25      30
Asn Asn Gln Val Ala Ile Pro Pro Ser Glu Arg Val Lys Glu Ser Tyr
      35      40      45
Ala Leu His Ser Asp Ile Phe Ser Leu Pro Pro Gly Ser Ala Leu Lys
      50      55      60
Leu Ala Glu Lys Thr Glu Ser Ile Arg Gln Leu Val Gly Leu Lys
      65      70      75      80
Asp Ser His Ile Phe Arg Phe Val Pro His Phe Pro His Val Val His
      85      90      95
Ile Val Leu Ala Ala Leu Val Glu Asn Leu Ser Met Phe Gln Gly Arg
      100      105      110
Asn His Ile Ile Leu Pro Ala His Asp Gln Gln Leu Leu Ile Asn Ser
      115      120      125
Leu Cys Arg His Gln Gly Leu Gly Thr Thr Tyr Asp Trp Val Thr Val
      130      135      140
Asn His Glu Gly Arg Ile Val Glu Glu Gln Leu Ile Glu Thr Leu Ser
      145      150      155      160
Pro Arg Ser Leu Leu Phe Ser Leu Ser Ala Ala His Gly Leu Thr Gly
      165      170      175
Val Ile Gln Pro Leu Asp Pro Leu Leu Ser Leu Cys Lys Asp Arg Arg
      180      185      190
Ile Leu Leu His Leu Asp Ile Ser Asp Ile Leu Gly Arg Ala Pro Leu
      195      200      205
Thr Pro Glu Ile Leu Asn Ala Asp Ile Ile Thr Phe Ser Ser Ala Ala
      210      215      220
Leu Gly Gly Met Gly Ser Ile Gly Gly Ile Phe Ile Arg Lys Ser Leu
      225      230      235      240
Glu Arg Val Phe Ser Ser Trp Phe Pro Pro His Thr Ser Ala Ser Leu
      245      250      255
Cys Phe Ser Ala Val Ala Ala Met Gln Thr Ala Cys Glu Glu Arg Ile
      260      265      270
Ser Ala Leu Pro Leu Phe Thr Phe His Thr Ser Asn Leu Cys Lys Lys
      275      280      285
Leu Ile Gln Glu Leu Gln Ser Val Leu Pro Ser Ile Gln Leu Ala Phe
      290      295      300
Ser Glu Val Gln Asn Arg Leu Pro Asn Ile Val Val Ala Ala Ile Pro
      305      310      315      320
Asp Ile Pro Ala Glu Ser Leu Ala Phe His Leu His Gln Gln Gly Ile
      325      330      335
Tyr Pro Ser Leu Gly Tyr Glu Arg Phe Gln Pro Leu Ala Gln Val Leu
      340      345      350
Gln Asn Cys Gly Ile Ser Pro Phe Leu Cys His Ser Ala Leu His Phe
      355      360      365
Ser Leu Thr Glu Arg Ser Lys Asp Leu Glu Phe Ser Lys Leu Ala Arg
      370      375      380
Ala Met His Asp Ala Ile Lys His Leu Thr Pro Leu Leu Gly Ser Ser
      385      390      395      400
Ser

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&lt;210&gt;929

&lt;211&gt;228

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;929

Met Ala Leu Leu Ile Leu Leu Arg His Gly Gln Ser Val Trp Asn Glu  
 1 5 10 15  
 Lys Asn Leu Phe Ser Gly Trp Val Asp Ile Pro Leu Ser Gln Gln Gly  
 20 25 30  
 Ile Glu Glu Ala Phe Ser Ala Gly Arg Ala Ile Gln Asn Leu Pro Ile  
 35 40 45  
 Asp Cys Ile Phe Thr Ser Thr Leu Val Arg Ser Leu Met Thr Ala Leu  
 50 55 60  
 Leu Ala Met Thr Asn His His Ser Lys Lys Ile Pro Tyr Ile Val His  
 65 70 75 80  
 Glu Asp Pro Lys Ala Lys Glu Met Ser Arg Ile Tyr Ser Ala Glu Glu  
 85 90 95  
 Glu Asn Asn Met Ile Pro Leu Tyr Gln Ser Ser Ala Leu Asn Glu Arg  
 100 105 110  
 Met Tyr Gly Glu Leu Gln Gly Lys Asn Lys Lys Gln Thr Ala Glu Gln  
 115 120 125  
 Phe Gly Glu Glu Arg Val Lys Leu Trp Arg Arg Ser Tyr Lys Thr Ala  
 130 135 140  
 Pro Pro Gln Gly Glu Ser Leu Tyr Asp Thr Lys Gln Arg Thr Leu Pro  
 145 150 155 160  
 Tyr Phe Glu Lys Asn Ile Leu Pro Gln Leu Gln Asn Gly Lys Asn Val  
 165 170 175  
 Phe Val Ser Ala His Gly Asn Ser Leu Arg Ser Leu Ile Met Asp Leu  
 180 185 190  
 Glu Lys Leu Ser Glu Glu Glu Val Leu Ser Leu Glu Leu Pro Thr Gly  
 195 200 205  
 Lys Pro Val Val Tyr Gln Trp Lys Asn His Lys Ile Glu Lys His Pro  
 210 215 220  
 Glu Phe Phe Gly  
 225

&lt;210&gt;930

&lt;211&gt;235

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;930

Val Thr Lys Val Arg Leu Asn Lys Phe Leu Ala Ser Ala Gly Val Ala  
 1 5 10 15  
 Ser Arg Arg Lys Cys Asp Glu Ile Ile Phe Ser Gly Ser Val Thr Val  
 20 25 30  
 Asn Gly Arg Val Ala Glu Gly Pro Phe Val Leu Val Asp Pro Glu Asp  
 35 40 45  
 Lys Val Gln Val Gly Gly Thr Ser Val His Leu Thr Lys Lys Val Tyr  
 50 55 60  
 Phe Met Val His Lys Ala Ile Gly Tyr Leu Cys Ser Ser Glu Lys Lys  
 65 70 75 80  
 Phe Pro Gly Thr Lys Leu Val Ile Asp Leu Phe Ala His Leu Pro Tyr  
 85 90 95  
 Arg Val Phe Thr Val Gly Arg Leu Asp Lys Glu Thr Ser Gly Leu Ile  
 100 105 110  
 Leu Val Thr Asn Asp Gly Glu Phe Ala Asn Lys Ile Ile His Pro Ser  
 115 120 125  
 Ser Gly Ile Thr Lys Glu Tyr Leu Leu Lys Val Ser Arg Asp Val Ser  
 130 135 140  
 Ala Lys Asp Leu Gly Lys Leu Met Glu Gly Thr Phe Ile Asp Gly Lys  
 145 150 155 160  
 His Val Arg Pro Val Ser Val Thr Lys Ile Arg Arg Gly Thr Val Lys  
 165 170 175  
 Ile Val Val Ser Glu Gly Lys Lys His Glu Ile Arg Leu Phe Ala Asp  
 180 185 190

Ala Ala Gly Leu Pro Ile Leu Glu Leu Lys Arg Ile Arg Ile Gly Ser  
 195 200 205  
 Leu Val Leu Gly Gly Leu Arg Tyr Gly Glu Tyr Arg Glu Leu Thr Asp  
 210 215 220  
 Ala Glu Leu Gly Thr Tyr Met Lys Leu Ser Asp  
 225 230 235

&lt;210&gt;931

&lt;211&gt;193

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;931

Asn Met Lys Val Ile Tyr Tyr Glu Ile Glu Glu Ile Pro Ser Thr Asn  
 1 5 10 15  
 Thr Met Ala Lys Ser Tyr Met His Leu Trp Asp Pro Tyr Ala Leu Thr  
 20 25 30  
 Val Ile Ser Thr Lys Cys Gln Thr Ala Gly Thr Gly Lys Phe Gly Lys  
 35 40 45  
 Ser Trp Lys Ser Ser Lys Gly Asp Leu Leu Asn Thr Phe Cys Phe Phe  
 50 55 60  
 Ile Thr Asp Leu His Ile Asp Val Ser Arg Leu Phe Arg Leu Gly Thr  
 65 70 75 80  
 Glu Ala Val Val Ala Leu Cys Lys Asp Leu Gly Ile Thr Glu Ala Lys  
 85 90 95  
 Ile Lys Trp Pro Asn Asp Val Leu Val His Gly Glu Lys Leu Cys Gly  
 100 105 110  
 Val Leu Pro Glu Thr Leu Pro Val Glu Gly Leu Leu Gly Val Val Leu  
 115 120 125  
 Gly Ile Gly Leu Asn Gly Asn Thr Thr Lys Gln Ala Leu Lys Asp Val  
 130 135 140  
 Gly Gln Pro Ala Thr Ser Leu Gln Glu Ile Leu Gly His Pro Ile Asp  
 145 150 155 160  
 Leu Glu Thr Thr Arg Glu Leu Leu Ile His His Leu Leu Gly Val Leu  
 165 170 175  
 Gln Glu Asn Leu Pro Asp Ser Leu Ala Thr Lys Ser Asn Arg Gly Asn  
 180 185 190  
 Ile

&lt;210&gt;932

&lt;211&gt;421

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;932

Cys Ile Arg Ile Pro Gln Met His Ile Gly Phe Cys His Cys Val Arg  
 1 5 10 15  
 Gly Gly Asn Phe Phe Tyr Phe Val Ile Asn Asn Phe His Ile Leu Glu  
 20 25 30  
 Ile Tyr Ser Leu Leu Asn Ser Asn Thr Ile Met Arg Tyr His Lys Tyr  
 35 40 45  
 Phe Arg Tyr Val Asn Ser Trp Val Phe Leu Val Val Leu Thr Leu Met  
 50 55 60  
 Leu Leu Ser Val Val Val Ile Ser Ser Met Asp Pro Thr Ala Met Leu  
 65 70 75 80  
 Val Thr Ser Ser Lys Gly Leu Leu Thr Asn Lys Ser Ile Met Gln Leu  
 85 90 95  
 Arg His Phe Ala Leu Gly Trp Val Val Phe Phe Ile Cys Ala Tyr Phe  
 100 105 110  
 Asp Tyr His Leu Phe Lys Arg Trp Ala Trp Val Leu Tyr Phe Phe Met  
 115 120 125  
 Ile Cys Ala Leu Val Gly Leu Phe Phe Val Pro Ser Val Gln Asn Val  
 130 135 140  
 His Arg Trp Tyr Arg Ile Pro Phe Ile His Met Ser Val Gln Pro Ser  
 145 150 155 160  
 Glu Tyr Gly Lys Leu Val Ile Val Ile Met Leu Ser Tyr Ile Leu Glu  
 165 170 175

Ser Arg Lys Ala Asp Ile Thr Ser Lys Thr Thr Ala Phe Leu Ala Cys  
 180 185 190  
 Leu Val Val Ala Leu Pro Phe Phe Leu Ile Leu Lys Glu Pro Asp Leu  
 195 200 205  
 Gly Thr Ala Leu Val Leu Cys Pro Val Thr Leu Thr Ile Phe Tyr Leu  
 210 215 220  
 Ser Asn Val His Ser Leu Leu Val Lys Phe Cys Thr Val Val Ala Thr  
 225 230 235 240  
 Ile Gly Ile Ile Gly Ser Leu Leu Ile Phe Ser Gly Ile Val Ser His  
 245 250 255  
 Gln Lys Val Lys Pro Tyr Ala Leu Lys Val Ile Lys Glu Tyr Gln Tyr  
 260 265 270  
 Glu Arg Leu Ser Pro Ser Asn His Gln Arg Ala Ser Leu Ile Ser  
 275 280 285  
 Ile Gly Leu Gly Gly Ile Arg Gly Arg Gly Trp Lys Thr Gly Glu Phe  
 290 295 300  
 Ala Gly Arg Gly Trp Leu Pro Tyr Gly Tyr Thr Asp Ser Val Phe Ser  
 305 310 315 320  
 Ala Leu Gly Glu Glu Phe Gly Leu Leu Gly Leu Leu Phe Thr Leu Gly  
 325 330 335  
 Leu Phe Tyr Cys Leu Ile Cys Phe Gly Cys Arg Thr Val Ala Val Ala  
 340 345 350  
 Thr Asp Asp Phe Gly Lys Leu Leu Ala Ala Gly Ile Thr Val Tyr Leu  
 355 360 365  
 Ala Met His Val Leu Ile Asn Ile Ser Met Met Cys Gly Leu Leu Pro  
 370 375 380  
 Ile Thr Gly Val Pro Leu Ile Leu Ile Ser Tyr Gly Gly Ser Ser Val  
 385 390 395 400  
 Ile Ser Thr Met Ala Ser Leu Gly Val Leu Gln Ser Ile Tyr Ser His  
 405 410 415  
 Arg Phe Ala Lys Tyr  
 420

&lt;210&gt;933

&lt;211&gt;392

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;933

Ile Phe Phe Ser Ile Cys Ser Leu Tyr Phe Cys Asn Cys Leu Trp Asn  
 1 5 10 15  
 Cys Pro Phe Gly Ser Phe Ile Tyr Phe His Ser Ile Val Arg Thr Ser  
 20 25 30  
 Glu Cys Ile Leu Pro Cys Pro Ser Val Ser Tyr Cys Ser Val Ser Val  
 35 40 45  
 Cys Phe Asp His Cys Asp Ser Tyr Cys Leu Phe Lys Cys Tyr Gln Cys  
 50 55 60  
 Leu Cys Glu Thr Trp Gly Ser Xaa Glu Arg Arg Cys Val Leu Asp Arg  
 65 70 75 80  
 Leu Val Ser Cys Asn Ser Val Val Met Asp Lys Thr Gly Thr Leu Thr  
 85 90 95  
 Thr Gly Glu Leu Thr Cys Ile Gly Cys Asp Tyr Phe Gly Ser Lys Asn  
 100 105 110  
 Glu Thr Phe Phe Pro Ser Val Leu Ala Leu Glu Gln Ser Ser Ser His  
 115 120 125  
 Pro Ile Ala Glu Ala Ile Val Ser Tyr Leu Met Glu Gln Lys Val Ser  
 130 135 140  
 Ser Leu Pro Ala Asp Arg Tyr Leu Thr Val Pro Gly Glu Gly Val Arg  
 145 150 155 160  
 Gly Tyr Phe Asn Glu Gln Glu Ala Phe Val Gly Arg Val Glu Thr Gly  
 165 170 175  
 Leu Gly Lys Val Pro Ser Glu Tyr Leu Glu Asp Ile Glu Gln Lys Ile  
 180 185 190  
 Tyr Gln Ala Lys Gln His Gly Glu Ile Cys Ser Leu Ala Tyr Val Gly  
 195 200 205  
 Asn Ser Phe Ala Leu Phe Tyr Phe Arg Asp Ile Pro Arg Pro Gln Ala

210 215 220  
 Lys Glu Ile Ile Gln Asp Leu Lys Asp Leu Gly Tyr Pro Val Ser Met  
 225 230 235 240  
 Leu Thr Gly Asp His Lys Val Ser Ala Glu Asn Thr Ala Glu Ile Leu  
 245 250 255  
 Gly Ile Ser Glu Val Phe Phe Asp Leu Thr Pro Glu Asp Lys Leu Ala  
 260 265 270  
 Lys Ile Arg Glu Leu Ala Thr Gln Arg Gln Ile Met Met Val Gly Asp  
 275 280 285  
 Gly Ile Asn Asp Ala Pro Ala Leu Ala Gln Ala Thr Val Gly Ile Ala  
 290 295 300  
 Met Gly Glu Ala Gly Ser Ala Thr Ala Ile Glu Ala Ala Asp Ile Val  
 305 310 315 320  
 Leu Leu His Asp Ser Leu Ser Ser Leu Pro Trp Ile Ile Gln Lys Ala  
 325 330 335  
 Lys Gln Thr Lys Lys Val Val Ser Gln Asn Leu Ala Leu Ala Leu Ala  
 340 345 350  
 Ile Ile Leu Leu Val Ser Trp Pro Ala Ser Leu Gly Ile Ile Pro Leu  
 355 360 365  
 Trp Leu Ala Val Ile Leu His Glu Gly Ser Thr Val Ile Val Gly Leu  
 370 375 380  
 Asn Ala Leu Arg Leu Leu Lys Ser  
 385 390  
 <210>934  
 <211>373  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>934  
 Asn Phe Arg Asn Gly Leu Gly Val Arg Asp Leu His His Phe Arg Glu  
 1 5 10 15  
 Tyr Tyr Leu Ile Ile Asn Glu Ile Ile Ile Thr Gly Arg Tyr Val Phe  
 20 25 30  
 Ser Arg Leu Phe Phe Thr Ser Phe Ser Ala Glu Val Val Asn Thr Phe  
 35 40 45  
 Phe Glu Ser Gly Met Ser Glu Asp Thr Ser Pro Leu Leu Ser Lys Gln  
 50 55 60  
 Asn Arg Lys Leu Ser His Asn Leu Pro Leu Lys Ser Ala Tyr Leu Ser  
 65 70 75 80  
 Leu Gly Thr Tyr Leu Ile Ala Leu Leu Ser Phe Trp Leu His Ala Lys  
 85 90 95  
 Asn Leu Ser Asn Leu Phe Val Val Phe Thr Phe Phe Leu Ala Gly Thr  
 100 105 110  
 Pro Ala Leu Ile Lys Ser Leu Val Asn Ile Cys Gln Lys Val Val Asn  
 115 120 125  
 Ile Asp Ile Leu Met Thr Ser Ala Pro Phe Gly Ser Ile Phe Ile Gly  
 130 135 140  
 Gly Ala Leu Glu Gly Ala Leu Leu Leu Val Leu Phe Ala Ile Ser Glu  
 145 150 155 160  
 Ala Leu Gly Gln Met Val Ser Gly Lys Ala Lys Ser Thr Leu Val Ser  
 165 170 175  
 Leu Lys Gln Leu Ala Pro Thr Thr Gly Trp Leu Val Leu Glu Asp Gly  
 180 185 190  
 Asn Leu Gln Lys Val Ala Ile Asn Lys Ile Glu Val Gly Asn Ile Leu  
 195 200 205  
 Arg Ile Lys Ser Gly Glu Val Val Pro Leu Asp Gly Glu Ile Leu His  
 210 215 220  
 Gly Ser Ser Ser Ile Asn Leu Met His Leu Thr Gly Glu Lys Val Pro  
 225 230 235 240  
 Lys Ser Cys His Pro Gly Ser Ile Val Pro Ala Gly Ala His Asn Met  
 245 250 255  
 Glu Gly Ser Phe Asp Leu Arg Val Leu Arg Thr Gly Ser Asp Ser Thr  
 260 265 270  
 Ile Ala His Ile Ile Asn Leu Val Ile Gln Ala Gln Asn Ser Lys Pro  
 275 280 285

Arg Leu Gln Gln Arg Leu Asp Lys Tyr Ser Ser Val Tyr Ala Leu Ser  
 290 295 300  
 Ile Phe Ala Ile Ala Cys Gly Ile Ala Leu Leu Val Pro Leu Phe Thr  
 305 310 315 320  
 Ser Ile Pro Leu Leu Gly Pro Gln Ser Ala Phe Tyr Arg Ala Leu Ala  
 325 330 335  
 Phe Leu Ile Ala Ala Ser Pro Cys Ala Leu Ile Ile Ala Ile Pro Ile  
 340 345 350  
 Ala Tyr Leu Ser Ala Ile Asn Ala Cys Ala Lys His Gly Val Leu Xaa  
 355 360 365  
 Lys Gly Gly Val Phe  
 370

&lt;210&gt;935

&lt;211&gt;274

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;935

Glu Gly Trp Arg Phe Phe Phe Pro Lys Thr Ser Glu Asn Thr Ser Asp  
 1 5 10 15  
 Cys Arg Gln His Gln Ile Leu Arg Lys Ile Met Thr Gln Asp Pro His  
 20 25 30  
 Asp His Phe Lys Ser Arg Thr Pro Glu Asp His Ile Lys His Val Arg  
 35 40 45  
 Asp Lys His Arg Val Cys Lys Gly Glu Pro His Thr Thr Phe Lys Gly  
 50 55 60  
 Phe Phe Tyr His Leu Ala Asn Asn Ala Leu Ser Thr Gly Val Phe Ile  
 65 70 75 80  
 Phe Phe Ile Arg Thr Leu Phe Phe Leu Ile Pro Thr Asn Arg Ala Leu  
 85 90 95  
 Gln Val Lys Ser Leu Ile Ser Leu Gly Val Gly Trp Thr Phe Tyr His  
 100 105 110  
 Gly Cys Leu Lys Ala Arg Lys Ala Trp Ala Tyr Met Glu Leu Ser His  
 115 120 125  
 Arg Ser Met Leu Glu Glu Lys Asn Glu Ile Glu Glu Asn Phe Glu Gln  
 130 135 140  
 Glu Lys Ile Glu Leu Arg Ile Leu Phe Glu Asn Gln Gly Phe Lys Asp  
 145 150 155 160  
 Pro Leu Leu Gln Glu Met Val Glu Tyr Val Cys Ser Asp Ser Thr Leu  
 165 170 175  
 Leu Leu Asp Thr Met Ile Arg Glu Glu Leu Tyr Ile Arg Lys Glu Asp  
 180 185 190  
 Leu Pro His Pro Leu Ile Gln Gly Ser Arg Ile Leu Gly Gly Leu  
 195 200 205  
 Cys Gly Leu Ala Ile Phe Leu Pro Leu Val Leu Cys Ile Ser Tyr Thr  
 210 215 220  
 Leu Ala Gly Val Phe Ser Ala Leu Met Val Leu Val Leu Ser Phe Leu  
 225 230 235 240  
 Lys Ala Lys Ile Leu Lys Asn Asp Lys Ile Ser Glu Met Val Trp Val  
 245 250 255  
 Leu Gly Ile Phe Ile Thr Ser Ala Ser Ile Ile Ser Ser Leu Met Lys  
 260 265 270  
 Leu Leu

&lt;210&gt;936

&lt;211&gt;466

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;936

Val Ile Leu Pro Phe Ser Pro Ile Ser Ile Ala Arg Arg Ile Lys Lys  
 1 5 10 15  
 Ser Cys Cys Ser Glu Lys Ser Ser Ile Tyr Ser His Phe Cys Thr Leu  
 20 25 30  
 Leu Leu Asn Asn Glu Thr Ser Met Leu Asp Ile Lys Ile Ile Arg Lys  
 35 40 45



Thr Pro Glu Glu Cys Glu Thr Arg Leu Arg Lys Lys Asp Pro Lys Ile  
 50 55 60  
 Ser Leu Glu Pro Val Leu Ser Leu Asp Lys Glu Val Arg Gln Leu Lys  
 65 70 75 80  
 Thr Asp Ser Glu Thr Leu Gln Ala Gln Arg Arg Leu Leu Ser Gln Asp  
 85 90 95  
 Ile His Lys Ala Lys Thr Gln Gly Val Asp Ala Thr Asn Leu Ile Gln  
 100 105 110  
 Glu Val Glu Thr Leu Ala Ala Asp Leu Glu Lys Ile Glu Gln His Leu  
 115 120 125  
 Asp Gln Lys Asn Ala Gln Leu His Glu Leu Leu Ser His Leu Pro Asn  
 130 135 140  
 Tyr Pro Ala Asp Asp Ile Pro Val Ser Glu Asp Lys Ala Gly Asn Gln  
 145 150 155 160  
 Val Ile Lys Ser Val Gly Asp Leu Pro Ile Phe Ser Phe Pro Pro Lys  
 165 170 175  
 His His Leu Glu Leu Asn Gln Glu Leu Asp Ile Leu Asp Phe Gln Ala  
 180 185 190  
 Ala Ala Lys Thr Thr Gly Ser Gly Trp Pro Ala Tyr Lys Asn Arg Gly  
 195 200 205  
 Val Leu Leu Glu Trp Ala Leu Leu Thr Tyr Met Leu Gln Lys Gln Ala  
 210 215 220  
 Ala His Gly Phe Gln Leu Trp Leu Pro Pro Leu Leu Val Lys Lys Glu  
 225 230 235 240  
 Ile Leu Phe Gly Ser Gly Gln Ile Pro Lys Phe Asp Gly Gln Tyr Tyr  
 245 250 255  
 Arg Val Glu Asp Gly Glu Gln Tyr Leu Tyr Leu Ile Pro Thr Ala Glu  
 260 265 270  
 Val Val Leu Asn Gly Phe Arg Ser Gln Asp Ile Leu Thr Glu Lys Glu  
 275 280 285  
 Leu Pro Leu Tyr Tyr Ala Ala Cys Thr Pro Cys Phe Arg Arg Glu Ala  
 290 295 300  
 Gly Ala Ala Gly Ala Gln Glu Arg Gly Leu Val Arg Val His Gln Phe  
 305 310 315 320  
 His Lys Val Glu Met Phe Ala Phe Thr Thr Pro Asn Gln Asp Asp Ile  
 325 330 335  
 Ala Tyr Glu Lys Met Leu Ser Ile Val Glu Glu Met Leu Thr Glu Leu  
 340 345 350  
 Lys Leu Pro Tyr Arg Leu Ser Leu Leu Ser Thr Gly Asp Met Ser Phe  
 355 360 365  
 Thr Xaa Ser Lys Thr Ile Asp Ala Glu Val Trp Leu Pro Gly Gln Lys  
 370 375 380  
 Ala Phe Tyr Glu Val Ser Ser Ile Ser Gln Cys Thr Asp Phe Gln Ser  
 385 390 395 400  
 Arg Arg Ser Gly Thr Arg Tyr Lys Asp Ser Gln Gly Lys Leu Gln Phe  
 405 410 415  
 Val His Thr Leu Asn Gly Ser Gly Leu Ala Thr Pro Arg Leu Leu Val  
 420 425 430  
 Ala Ile Leu Glu Asn Asn Gln Gln Ala Asp Gly Ser Val Val Ile Pro  
 435 440 445  
 Glu Val Leu Arg Pro Tyr Leu Gly Gly Leu Glu Ile Leu Leu Pro Lys  
 450 455 460  
 Asp Gln  
 465  
 <210>937  
 <211>376  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>937  
 Met Glu Asp Phe Ser Glu Gln Gln Leu Phe Phe Met Arg Arg Ala Ile  
 1 5 10 15  
 Glu Ile Gly Glu Lys Gly Arg Ile Thr Ala Pro Pro Asn Pro Trp Val  
 20 25 30  
 Gly Cys Val Val Val Gln Glu Asn Arg Ile Ile Gly Glu Gly Phe His

35 40 45  
 Ala Tyr Ala Gly Gly Pro His Ala Glu Glu Leu Ala Ile Gln Asn Ala  
 50 55 60  
 Ser Met Pro Ile Ser Gly Ser Asp Val Tyr Val Ser Leu Glu Pro Cys  
 65 70 75 80  
 Ser His Phe Gly Ser Cys Pro Pro Cys Ala Asn Leu Leu Ile Lys His  
 85 90 95  
 Lys Val Ser Arg Val Phe Val Ala Leu Val Asp Pro Asp Pro Lys Val  
 100 105 110  
 Ala Gly Gln Gly Ile Ala Met Leu Arg Gln Ala Gly Ile Gln Val Tyr  
 115 120 125  
 Val Gly Ile Gly Glu Ser Glu Ala Gln Ala Ser Leu Gln Pro Tyr Leu  
 130 135 140  
 Tyr Gln Arg Thr His Asn Phe Pro Trp Thr Ile Leu Lys Ser Ala Ala  
 145 150 155 160  
 Ser Val Asp Gly Gln Val Ala Asp Ser Gln Gly Lys Ser Gln Trp Ile  
 165 170 175  
 Thr Cys Pro Glu Ala Arg His Asp Val Gly Lys Leu Arg Ala Glu Ser  
 180 185 190  
 Gln Ala Ile Leu Val Gly Ser Arg Thr Val Leu Ser Asp Asp Pro Trp  
 195 200 205  
 Leu Thr Ala Arg Gln Pro Gln Gly Met Leu Tyr Pro Lys Gln Pro Leu  
 210 215 220  
 Arg Val Val Leu Asp Ser Arg Gly Ser Val Pro Pro Thr Ser Lys Val  
 225 230 235 240  
 Phe Asp Lys Thr Ser Pro Thr Leu Tyr Val Thr Thr Glu Arg Cys Pro  
 245 250 255  
 Glu Asn Tyr Ile Lys Val Leu Asp Ser Leu Asp Val Pro Val Leu Leu  
 260 265 270  
 Thr Glu Ser Thr Pro Ser Gly Val Asp Leu His Lys Val Tyr Glu Tyr  
 275 280 285  
 Leu Ala Gln Lys Lys Ile Leu Gln Val Leu Val Glu Gly Gly Thr Thr  
 290 295 300  
 Leu His Thr Ser Leu Leu Lys Glu Arg Phe Val Asn Ser Leu Val Leu  
 305 310 315 320  
 Tyr Ser Gly Pro Met Ile Leu Gly Asp Gln Lys Arg Pro Leu Val Gly  
 325 330 335  
 Val Leu Gly Asn Leu Leu Glu Ser Ala Ser Pro Leu Thr Leu Lys Ser  
 340 345 350  
 Ser Gln Ile Leu Gly Asn Ser Leu Lys Val Val Trp Glu Ile Ser Pro  
 355 360 365  
 Gln Val Phe Glu Pro Ile Arg Asn  
 370 375

&lt;210&gt;938

&lt;211&gt;418

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;938

Met Ile Glu Thr Arg Glu Glu Val Gly Ser Ala Asn Phe Val Ser Leu  
 1 5 10 15  
 Glu Arg Ala Ile Glu Asp Leu Arg Ala Gly Lys Phe Val Ile Val Val  
 20 25 30  
 Asp Glu Ala Ser Arg Glu Asp Glu Gly Asp Leu Ile Ile Ala Gly Glu  
 35 40 45  
 Lys Ile Thr Val Glu Lys Met Thr Phe Leu Leu Gln His Thr Thr Gly  
 50 55 60  
 Val Val Cys Ala Ala Leu Ser Gln Glu Arg Leu Leu Ser Leu Asp Leu  
 65 70 75 80  
 Pro Pro Met Val Lys Asp Asn Arg Cys Arg Phe Lys Thr Pro Phe Thr  
 85 90 95  
 Val Ser Val Asp Ala Ala His Gly Val Thr Thr Gly Val Ser Ala Ala  
 100 105 110  
 Asp Arg Thr Lys Val Val Gln Leu Leu Ala Asp Pro Lys Ser Lys Pro  
 115 120 125

Glu Asp Phe Ile Ser Pro Gly His Phe Phe Pro Leu Ala Ser Ser Pro  
 130 135 140  
 Gly Gly Val Leu Lys Arg Ala Gly His Thr Glu Ser Thr Val Asp Leu  
 145 150 155  
 Met Glu Leu Ala Gly Leu Gln Pro Cys Gly Val Leu Ala Glu Leu Val  
 165 170 175  
 Asn Glu Asp Tyr Ser Met Met Arg Leu Pro Gln Ile Leu Glu Phe Ala  
 180 185 190  
 Arg Lys His Asn Ile Ala Val Ile Pro Val Thr Ser Ile Ile Ala His  
 195 200 205  
 Arg Met Leu Ser Asp Arg Leu Val Ser Lys Ile Ser Ser Ala Arg Leu  
 210 215 220  
 Pro Thr Ile Tyr Gly Asp Phe Thr Ile His Val Tyr Glu Ser Leu Leu  
 225 230 235 240  
 Glu Gly Met Gln His Leu Ala Leu Val Lys Gly Asn Val Ala Gly Lys  
 245 250 255  
 Ser Asn Val Leu Val Arg Val His Ser Glu Cys Val Thr Gly Asp Ile  
 260 265 270  
 Leu Gly Ser Lys Arg Cys Asp Cys Gly Glu Gln Leu Ser Ser Ala Met  
 275 280 285  
 Ser Tyr Ile Ala Glu Lys Gly Thr Gly Val Leu Val Tyr Leu Arg Gly  
 290 295 300  
 Gln Glu Gly Arg Gly Ile Gly Leu Gly His Lys Val Arg Ala Tyr Ala  
 305 310 315 320  
 Leu Gln Asp Asn Gly Tyr Asp Thr Val Asp Ala Asn Leu Ala Met Gly  
 325 330 335  
 Phe Pro Val Asp Ser Arg Glu Tyr Gly Ile Gly Ala Gln Ile Xaa Ile  
 340 345 350  
 Asp Leu Xaa Leu Thr Thr Ile Lys Leu Ile Thr His Asn Pro Gln Lys  
 355 360 365  
 Tyr Phe Gly Leu Gln Gly Phe Gly Leu Ser Ile Thr Glu Arg Val Pro  
 370 375 380  
 Leu Pro Val Arg Ile Ser Glu Asp Asn Glu Gln Tyr Leu Arg Thr Lys  
 385 390 395 400  
 Gln Glu Arg Met Gly His Trp Leu Asp Leu Pro Cys Cys Asn Asn Arg  
 405 410 415  
 Val Gln

&lt;210&gt;939

&lt;211&gt;154

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;939

Met Lys Thr Leu Lys Gly His Leu Ser Ala Lys Asn Leu Arg Ile Ala  
 1 5 10 15  
 Ile Val Gly Ser Cys Phe Asn Gln Ala Met Ala Asp Ala Leu Val Ser  
 20 25 30  
 Gly Thr Gln Glu Thr Phe Leu Lys Phe Gly Gly Ser Glu Asp Gly Leu  
 35 40 45  
 Met Thr Ile Arg Val Pro Gly Ala Phe Glu Ile Pro Cys Thr Ile Lys  
 50 55 60  
 Lys Leu Leu Ser Ser Glu Arg Lys Phe Asp Ala Ile Val Ala Cys Gly  
 65 70 75 80  
 Val Leu Ile Gln Gly Glu Thr Asp His Tyr Asn Gln Ile Val Asn Gln  
 85 90 95  
 Val Ala Ala Gly Ile Gly Ala Leu Ser Leu Glu Phe Cys Leu Pro Ile  
 100 105 110  
 Thr Leu Ser Ile Val Ala Ala Pro Ser Ala Glu Ile Ala Trp Gln Arg  
 115 120 125  
 Ser Gly Ile Lys Gly Arg His Leu Gly Val Ser Gly Met Thr Thr Ala  
 130 135 140  
 Ile Glu Met Ala Thr Leu Phe Thr Gln Ile  
 145 150

&lt;210&gt;940

&lt;211&gt;472

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;940

Leu Ile Ser Leu Asn Leu Lys Ile Leu Thr Lys Gln Arg Asp Arg Glu  
 1 5 10 15  
 Glu Ala Ser Met Leu Lys Ile Leu Lys Ile Lys Val Leu Val Phe Pro  
 20 25 30  
 Leu Ala Leu Leu Met Gly Cys Asn Ser Ile Gly Tyr Ala Gly Pro Gln  
 35 40 45  
 Gly Ser Leu Gln Thr Asn Ser Gln Thr Lys Val Lys Ile Gly Ser Glu  
 50 55 60  
 Val Trp Ile Glu Gln Lys Leu Arg Gln Tyr Pro Glu Leu Leu Trp Leu  
 65 70 75 80  
 Thr Glu Ser Gly Gly Ala Pro Leu Leu Thr Ser Thr Pro Ile Asp Met  
 85 90 95  
 Ala Tyr Ser Glu Lys Leu Phe Asn Lys Lys Val Pro Ala Leu Asp Ile  
 100 105 110  
 Ala Ile Arg Ser Met Ile His Leu His Leu Leu Ile Gln Gly Ser Arg  
 115 120 125  
 Gln Ser Tyr Met Gln Leu Ser Gln Ile Leu Pro Ser Glu Glu Gly Gly  
 130 135 140  
 Met Thr Phe Lys Gln Phe Gln Thr Ala His Lys Gln Leu Leu Phe Phe  
 145 150 155 160  
 Leu Asn Ser Pro Lys Ser Phe Asp Asn Thr Leu Arg Ile Leu Glu Thr  
 165 170 175  
 Ala Ile Val Leu Arg His Val Gly Cys Ser Ala Lys Ala Val Thr Thr  
 180 185 190  
 Phe Lys Pro Tyr Phe Thr Asp Ser Cys Pro Gln Ser Phe Tyr Ala Lys  
 195 200 205  
 Ala Leu His Val Leu Arg Thr Phe Pro Glu Leu Cys Pro Ser Tyr Ala  
 210 215 220  
 Arg Leu Ser Pro Glu Gln Gln Glu Val Leu Leu Ser Leu Arg Arg Leu  
 225 230 235 240  
 Gly Asn Tyr Asp Ser Leu Leu Asn Leu Thr Glu Val Pro Ser Ala Gln  
 245 250 255  
 Leu Leu Ser Ala Trp Arg Thr Arg Arg Ser Leu Ala Ile Leu Asp Leu  
 260 265 270  
 Tyr Leu Tyr Cys Leu Asp Thr Cys Gly Asp Lys Asn Cys Ser Gln Glu  
 275 280 285  
 Phe Tyr Ile Asn Phe Ala Pro Leu Leu Ser Met Leu Gln Gln His Ala  
 290 295 300  
 Thr Ile Glu Glu Ala Phe Ser Arg Tyr Phe Thr Tyr Arg Ala Asn Arg  
 305 310 315 320  
 Leu Gly Phe Glu Gly Thr Ser Arg Thr Asp Met Thr Leu Val Arg Leu  
 325 330 335  
 Ala Thr Leu Met Asn Leu Ser Pro Ser Glu Ala Ser Thr Leu Ala Trp  
 340 345 350  
 Ser Phe Lys Asn Leu Pro Ser Asp Glu Ala Glu Asn Leu Val Asn Ser  
 355 360 365  
 Phe Tyr Thr Val Gln Gly Glu His Ile Pro Leu Thr Phe Arg Gly Leu  
 370 375 380  
 Pro Ser Leu Val Ala Gly Leu Ser Val Ala Thr His Gly Ser Thr Val  
 385 390 395 400  
 Ser Pro Glu Asn Arg Leu Arg Gln Leu Tyr Ser Thr Met Leu Ser Leu  
 405 410 415  
 Leu Val Lys Ser Leu Arg Ser His Arg Glu Met Leu Asn Lys Gln Leu  
 420 425 430  
 Leu Pro Gln Gly Thr Val Leu Asp Phe Ser Glu Thr Thr Leu Ser Ser  
 435 440 445  
 Gly Gly Leu Asp Val Phe Ala Glu Ser Ile Ala Val Arg Ile His Leu  
 450 455 460  
 Asn Gly Ala Val Ser Ile Asn Leu  
 465 470

&lt;210&gt;941

&lt;211&gt;220

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;941

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Leu Lys Ile Met Lys Arg Val Ile Tyr Lys Thr Ile Phe Cys Gly Leu
 1           5           10           15
Thr Leu Leu Thr Ser Leu Ser Ser Cys Ser Leu Asp Pro Lys Gly Tyr
          20           25           30
Asn Leu Glu Thr Lys Asn Ser Arg Asp Leu Asn Gln Glu Ser Val Ile
          35           40           45
Leu Lys Glu Asn Arg Glu Thr Pro Ser Leu Val Lys Arg Leu Ser Arg
          50           55           60
Arg Ser Arg Arg Leu Phe Ala Arg Arg Asp Gln Thr Gln Lys Asp Thr
          65           70           75           80
Leu Gln Val Gln Ala Asn Phe Lys Thr Tyr Ala Glu Lys Ile Ser Glu
          85           90           95
Gln Asp Glu Arg Asp Leu Ser Phe Val Val Ser Ser Ala Ala Glu Lys
          100          105          110
Ser Ser Ile Ser Leu Ala Leu Ser Gln Gly Glu Ile Lys Asp Ala Leu
          115          120          125
Tyr Arg Ile Arg Glu Val His Pro Leu Ala Leu Ile Glu Ala Leu Ala
          130          135          140
Glu Asn Pro Ala Leu Ile Glu Gly Met Lys Lys Met Gln Gly Arg Asp
          145          150          155          160
Trp Ile Trp Asn Leu Phe Leu Thr Gln Leu Ser Glu Val Phe Ser Gln
          165          170          175
Ala Trp Ser Gln Gly Val Ile Ser Glu Glu Asp Ile Ala Ala Phe Ala
          180          185          190
Ser Thr Leu Gly Leu Asp Ser Gly Thr Val Ala Ser Ile Val Gln Gly
          195          200          205
Glu Arg Trp Pro Glu Leu Val Asp Ile Val Ile Thr
          210          215          220

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&lt;210&gt;942

&lt;211&gt;385

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;942

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Gln Glu Ile Leu Ala Arg Glu Ile Ser Pro Glu Cys Cys Arg Leu Ser
 1           5           10           15
Leu Trp Arg Ser Arg Arg Pro Gly Leu Gly Leu Leu Ala Ala Leu Leu
          20           25           30
Gly Ala Ile Val Gln Tyr Ala Gly Ser Tyr Leu Gly Ser Lys Tyr Arg
          35           40           45
Lys Pro Glu Gly Asn Thr Gly Glu Phe Ile Gly Gly Pro Ile Ala Cys
          50           55           60
Leu Ala Phe Gly Met Arg Lys Lys Ile Leu Ala Gly Phe Phe Ala Leu
          65           70           75           80
Phe Thr Ile Met Thr Ala Phe Cys Ala Gly Asn Cys Val Gln Val Ser
          85           90           95
Cys Ile Val Pro Leu Cys Ala Glu Gly Thr Pro Gly Lys Leu Leu Val
          100          105          110
Gly Ile Leu Leu Ala Leu Val Val Ile Pro Val Leu Ala Gly Gly Asn
          115          120          125
Asn Arg Ile Leu Arg Phe Ser Ala Arg Val Ile Pro Phe Ile Ala Gly
          130          135          140
Phe Tyr Cys Ile Ser Cys Gly Ile Ile Leu Phe Gln His Ala Ser Ala
          145          150          155          160
Ile Leu Pro Ala Ile Lys Leu Ile Cys Ser Ser Ala Phe Gly Ile Lys
          165          170          175
Ala Gly Leu Ala Gly Ile Gly Gly Tyr Thr Leu Ser Gln Val Ile Ser
          180          185          190
Thr Gly Ile Asn Arg Ala Val Met Ala Thr Asp Cys Gly Ser Gly Met
          195          200          205

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Val Ser Ile Leu Gln Ala Asn Thr Lys Ser Lys Asn Pro Val Val Asp  
 210 215 220  
 Gly Leu Val Thr Leu Val Pro Pro Val Ile Val Met Val Val Cys Ser  
 225 230 235 240  
 Ile Thr Met Leu Val Leu Ile Val Ser Gly Ala Tyr Ser Ser Gly Ala  
 245 250 255  
 Gln Gly Thr Leu Met Val Met Ser Ala Phe Lys Asn Ser Leu Gly Ser  
 260 265 270  
 Leu Gly Ser Val Ile Val Ile Leu Ala Met Ala Leu Phe Gly Tyr Thr  
 275 280 285  
 Thr Ile Leu Thr Trp Phe Ala Cys Ala Glu Lys Ser Leu Gln Tyr Met  
 290 295 300  
 Ile Pro Gly Arg Arg Ala Asn Leu Trp Leu Lys Ala Ile Tyr Val Leu  
 305 310 315 320  
 Ile Ile Pro Leu Gly Gly Val Ile Asp Met Arg Met Ile Trp Ala Leu  
 325 330 335  
 Ser Asp Thr Gly Phe Ser Gly Met Val Ile Leu Asn Cys Ile Ala Leu  
 340 345 350  
 Ile Ala Leu Leu Lys Asp Val Leu Ser Thr Asn Arg Asp Val Ala Leu  
 355 360 365  
 Leu Lys Glu Arg Glu Cys Ser Val Ala Asp Pro Val Arg Asn Leu Asp  
 370 375 380

Ala

385

&lt;210&gt;943

&lt;211&gt;110

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;943

Arg Arg Arg Ile Met Gln Leu Leu Ser Pro Ala Phe Ala Tyr Gly Ala  
 1 5 10 15  
 Pro Ile Pro Lys Lys Tyr Thr Cys Gln Gly Ala Gly Ile Ser Pro Pro  
 20 25 30  
 Leu Thr Phe Val Asp Val Pro Gly Ala Ala Gln Ser Leu Ala Leu Ile  
 35 40 45  
 Val Glu Asp Pro Asp Val Pro Lys Glu Ile Arg Ser Asp Gly Leu Trp  
 50 55 60  
 Ile His Trp Ile Val Tyr Asn Leu Ser Thr Thr Ile Thr Asn Leu Ala  
 65 70 75 80  
 Glu Gly Ala Glu Ile Phe Ala Val Gln Gly Leu Asn Thr Ser Gly Lys  
 85 90 95  
 Pro Val Tyr Glu Gly Pro Cys Pro Pro Asp Lys Gln His Arg  
 100 105 110

&lt;210&gt;944

&lt;211&gt;223

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;944

Gly Cys Met Ser Thr Val Thr Thr Glu Pro Cys Ser Ser Ile His Ile  
 1 5 10 15  
 Ser Leu Asn Asn Asp Trp Arg Asp Ser Gln Pro Tyr Ser Leu Asp Arg  
 20 25 30  
 Ala Ser Glu Leu Leu His Phe Arg Phe Leu Pro Ser Leu Val Phe Ser  
 35 40 45  
 Asn Trp Lys Val Glu Gln Gln Ile Glu Thr Leu Cys His Lys Ser Glu  
 50 55 60  
 Lys Arg Arg Leu Ile Ser Pro Leu Ala Lys Trp Leu Gly Lys Leu His  
 65 70 75 80  
 Lys Gln Asp Leu Leu Cys Pro Pro Ala Pro Pro Val Ser Val Cys Trp  
 85 90 95  
 Ile Asn Ala His Val Gly Tyr Gly Val Phe Ala Arg Asp Glu Ile Ala  
 100 105 110  
 Pro Trp Thr Tyr Ile Gly Glu Tyr Thr Gly Ile Leu Arg His Arg Gln  
 115 120 125

Ala Ile Trp Met Asp Glu Asn Asp Tyr Cys Phe Arg Tyr Pro Met Pro  
 130 135 140  
 Leu Phe Thr Leu Arg Tyr Phe Thr Ile Asp Ser Gly Lys Gln Gly Asn  
 145 150 155 160  
 Val Thr Arg Phe Ile Asn His Ser Glu Gln Pro Asn Ala Glu Ala Ile  
 165 170 175  
 Gly Val Phe Ser Glu Gly Leu Phe His Val Ile Ile Arg Thr Ile Ala  
 180 185 190  
 Pro Ile Tyr Ala Gly Gln Glu Ile Cys Tyr His Tyr Gly Pro Leu Tyr  
 195 200 205  
 Trp Lys His Arg Lys Lys Arg Glu Glu Phe Ile Pro Glu Glu Glu  
 210 215 220

&lt;210&gt;945

&lt;211&gt;265

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;945

Met Gln Gly Phe Phe Pro Leu Ala Ser Gly Ser Lys Gly Asn Ser Ala  
 1 5 10 15  
 Tyr Leu Gly Thr Asp Ser Cys Lys Ile Leu Ile Asp Leu Gly Val Ser  
 20 25 30  
 Lys Gln Val Val Thr Arg Glu Leu Leu Ser Met Asn Ile Asp Pro Glu  
 35 40 45  
 Asp Ile Gln Ala Ile Phe Val Thr His Glu His Ser Asp His Ile Ser  
 50 55 60  
 Gly Ile Lys Ser Phe Val Lys Ala Tyr Asn Thr Pro Ile Val Cys Asn  
 65 70 75 80  
 Leu Glu Thr Ala Arg Ala Leu Cys His Leu Leu Asp Ser His Pro Glu  
 85 90 95  
 Phe Lys Ile Phe Ser Thr Gly Ser Ser Phe Cys Phe Gln Asp Leu Glu  
 100 105 110  
 Val Gln Thr Phe Asn Val Pro His Asp Ala Val Asp Pro Val Ala Phe  
 115 120 125  
 Ile Phe His Tyr Arg Glu Glu Lys Leu Gly Phe Cys Thr Asp Leu Gly  
 130 135 140  
 Trp Val Thr Ser Trp Ile Thr His Glu Leu Tyr Asp Cys Asp Tyr Leu  
 145 150 155 160  
 Leu Ile Glu Ser Asn His Ser Pro Glu Leu Val Arg Gln Ser Gln Arg  
 165 170 175  
 Pro Asp Val Tyr Lys Lys Arg Val Leu Ser Lys Leu Gly His Ile Ser  
 180 185 190  
 Asn Gln Glu Cys Gly Gln Leu Leu Gln Lys Ile Ile Thr Pro Lys Leu  
 195 200 205  
 Lys Lys Leu Tyr Leu Ala His Leu Ser Thr Glu Cys Asn Thr Ala Glu  
 210 215 220  
 Leu Ala Leu Ser Thr Val Ser Glu Ser Ile Ala Ser Ile Thr Ser Ile  
 225 230 235 240  
 Ala Pro Glu Ile Ala Leu Ala Gln Gly Ile Thr Ser Pro Ile Tyr Phe  
 245 250 255  
 Ser Arg Leu Glu Val Ala Cys Pro Arg  
 260 265

&lt;210&gt;946

&lt;211&gt;553

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;946

Asp Gly Ser Ile Ser Pro Leu Pro Gln Glu Glu Ile Pro Gly Ser Lys  
 1 5 10 15  
 Lys Glu Ser Phe Phe Leu Thr Pro His Pro Cys Lys Arg Phe Leu Thr  
 20 25 30  
 Lys Phe Val Glu Pro Gln Glu Asn Lys Ala Lys Glu Gly Lys Thr Ile  
 35 40 45  
 Ala Leu Ser Ser Thr Pro Thr Val Val Arg Glu Ser Lys Gly Lys Glu  
 50 55 60

Arg Ala Ala Leu Pro Lys Leu Lys Ser Leu Ala Val Pro Glu Asn Asp  
 65 70 75 80  
 Leu Pro Gln Tyr His Leu Leu Ser Lys Asn Arg Glu Ala Arg Pro Glu  
 85 90 95  
 Ser Leu Gln Ala Glu Leu Glu Arg Lys Ala Leu Ile Leu Lys Gln Thr  
 100 105 110  
 Leu Thr Ser Phe Gly Ile Asp Ala Asp Leu Gly Asn Ile Cys Ser Gly  
 115 120 125  
 Pro Thr Leu Ala Ala Phe Glu Val Leu Pro His Ser Gly Val Lys Val  
 130 135 140  
 Gln Lys Ile Lys Ser Leu Glu Asn Asp Ile Ala Leu Lys Leu Gln Ala  
 145 150 155 160  
 Ser Ser Ile Arg Ile Ile Ala Pro Ile Pro Gly Lys Ala Ala Val Gly  
 165 170 175  
 Ile Glu Ile Pro Thr Pro Phe Pro Gln Ala Val Asn Phe Arg Asp Leu  
 180 185 190  
 Leu Glu Asp Tyr Gln Lys Thr Asn Arg Lys Leu Gln Ile Pro Leu Leu  
 195 200 205  
 Leu Gly Lys Lys Ala Asn Gly Asp Asn Leu Trp Ala Asp Leu Ala Thr  
 210 215 220  
 Met Pro His Leu Ile Ile Ala Gly Thr Thr Gly Ser Gly Lys Ser Val  
 225 230 235 240  
 Cys Ile Asn Thr Ile Val Met Ser Met Ile Met Thr Thr Leu Pro Ser  
 245 250 255  
 Glu Ile Lys Leu Val Ile Ile Asp Pro Lys Lys Val Glu Leu Thr Gly  
 260 265 270  
 Tyr Ser Gln Leu Pro His Met Leu Ser Pro Val Ile Thr Glu Ser Arg  
 275 280 285  
 Glu Val Tyr Asn Ala Leu Val Trp Leu Val Lys Glu Met Glu Ser Arg  
 290 295 300  
 Tyr Glu Ile Leu Arg Tyr Leu Gly Leu Arg Asn Ile Gln Ala Phe Asn  
 305 310 315 320  
 Ser Arg Thr Arg Asn Lys Thr Ile Glu Ala Ser Tyr Asp Arg Glu Ile  
 325 330 335  
 Arg Glu Thr Met Pro Phe Met Val Gly Ile Ile Asp Glu Leu Ser Asp  
 340 345 350  
 Leu Leu Leu Ser Ser Ser Gln Asp Ile Glu Thr Pro Ile Ile Arg Leu  
 355 360 365  
 Ala Gln Met Ala Arg Ala Val Gly Ile His Leu Ile Leu Ala Thr Gln  
 370 375 380  
 Arg Pro Ser Arg Glu Val Ile Thr Gly Leu Ile Lys Ala Asn Phe Pro  
 385 390 395 400  
 Ser Arg Ile Ser Phe Lys Val Ser Asn Lys Val Asn Ser Gln Ile Ile  
 405 410 415  
 Ile Asp Glu Pro Gly Ala Glu Asn Leu Met Gly Asn Gly Asp Met Leu  
 420 425 430  
 Val Leu Leu Pro Ser Val Phe Gly Thr Ile Arg Ala Gln Gly Ala Tyr  
 435 440 445  
 Ile Cys Asp Glu Asp Ile Asn Lys Val Ile Gln Asp Leu Cys Ser Arg  
 450 455 460  
 Phe Pro Thr Gln Tyr Val Ile Pro Ser Phe His Ala Phe Asp Asp Ser  
 465 470 475 480  
 Asp Ser Asp Asn Ser Gly Glu Lys Asp Pro Leu Phe Ala Gln Ala Lys  
 485 490 495  
 Thr Leu Ile Leu Gln Thr Gly Asn Ala Ser Thr Thr Phe Leu Gln Arg  
 500 505 510  
 Lys Leu Lys Ile Gly Tyr Ala Arg Ala Ala Ser Leu Ile Asp Gln Leu  
 515 520 525  
 Glu Glu Ala Arg Ile Ile Gly Pro Ser Glu Gly Ala Lys Pro Arg Gln  
 530 535 540  
 Ile Leu Ile Gln Asn Pro Leu Glu Gly  
 545 550  
 <210>947  
 <211>218



&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;947

Pro Met Ile Arg Glu Arg Lys Lys Ser Arg His Pro Arg Leu Pro Thr  
 1 5 10 15  
 Leu Pro Leu Ala Ala Lys Ala Ser Leu Tyr Leu Phe Phe Ala Cys Phe  
 20 25 30  
 Ser Gly Leu Ser Leu Trp Ser Phe His Arg Asp Gln Pro Cys Thr Gln  
 35 40 45  
 Asn Trp Ile Gly Leu Leu Gly Trp Ser Phe Ser Ser Phe Leu Leu Tyr  
 50 55 60  
 Phe Phe Gly Ala Ala Ala Phe Phe Ile Pro Xaa Tyr Phe Leu Trp Leu  
 65 70 75 80  
 Ser Phe Leu Tyr Phe Arg Arg Thr Pro Arg Pro Leu Phe Phe Tyr Lys  
 85 90 95  
 Ala Ala Ala Phe Leu Ser Leu Pro Phe Cys Ser Ala Ile Leu Leu Ser  
 100 105 110  
 Met Leu Ser Pro Val Gly Thr Leu Pro Ala Leu Leu Asp Thr Arg Leu  
 115 120 125  
 Pro Lys Phe Ile Leu Gly Asn Ile Pro Pro Val Ser Tyr Val Gly Gly  
 130 135 140  
 Ile Pro Phe Tyr Leu Phe Tyr Glu Gly Gln Ser Phe Cys Leu Lys His  
 145 150 155 160  
 Leu Ile Gly Ser Val Gly Thr Ala Leu Ile Phe Gly Phe Val Met Leu  
 165 170 175  
 Phe Ser Val Leu Tyr Leu Cys Gly Arg His Cys Phe Ile Lys Lys Lys  
 180 185 190  
 Xaa Leu Ser Arg Arg Gly Gln Lys Gly Phe Leu Leu Phe Phe Pro Asn  
 195 200 205  
 Leu Phe Gln Lys Phe Lys Lys Ile Asn Lys  
 210 215

&lt;210&gt;948

&lt;211&gt;162

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;948

Lys Thr Ser Asn Asn Thr Gln Lys Asn Leu Leu Leu Ile Lys Ser Ala  
 1 5 10 15  
 Glu Ser Ser Ser Leu Gln Leu Ser Leu Ala Ser Ser Ala Ile Ser Ser  
 20 25 30  
 Arg Val Glu Gln Leu Ser Ser Leu Val Leu Gly Met Glu Asn Ser Asp  
 35 40 45  
 Phe Ser Ser Leu Arg Asp Val Pro Ile Phe Ser Ala Ile Tyr Glu Ser  
 50 55 60  
 Ser Thr His Thr Pro Val Pro Thr Pro Leu Val Gly Val Gly Tyr Ile  
 65 70 75 80  
 Asn Gly Ser Gln Ser Gly Tyr Tyr Asp Thr Gln Arg Glu Ser Leu His  
 85 90 95  
 Leu Ser Gln Leu Leu Gly Ser Arg Arg Val Glu Val Val Tyr Asn Gln  
 100 105 110  
 Gly Asn Phe Met Glu Ala Ser Leu Asn Leu Cys Pro Arg Arg Pro  
 115 120 125  
 Arg Arg Asp Pro Ser Pro Ile Ser Leu Ala Leu Leu Glu Leu Trp Glu  
 130 135 140  
 Ala Phe Phe Leu Glu His Pro Pro Gly Ser Thr Phe Asn Pro Ile Phe  
 145 150 155 160  
 Phe Trp

&lt;210&gt;949

&lt;211&gt;127

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;949

Thr Arg Ser Lys Lys Ser Gln Ser Cys Leu Lys Ser Met Ala Gly Phe

1 5 10 15  
 Arg Leu Gln Ser Leu Gln Ile Leu Tyr Arg Arg Ile Gly Ser Leu Tyr  
 20 25 30  
 Leu Gln Lys His Asp Asn Lys Arg Ser Glu Asp Val Leu Asp Ile Glu  
 35 40 45  
 Lys Asp Arg Tyr Gln Arg Ala Leu Tyr Ser Val His Ala Glu Leu Gly  
 50 55 60  
 Gly Glu Leu Arg Glu His Arg Lys Leu Arg Tyr Gln Lys Asn Ile Gly  
 65 70 75 80  
 Leu Lys Val Leu Pro Gly Gly Cys Ser Lys Lys Asn Ala Ser Gln Ser  
 85 90 95  
 Ser Asn Arg Ala Lys Glu Ile Gly Glu Gly Ser Leu Arg Gly Leu Leu  
 100 105 110  
 Gly His Arg Phe Ser Lys Glu Ala Ser Met Lys Phe Pro Trp Leu  
 115 120 125  
 <210>950  
 <211>412  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>950  
 Asn Thr Pro Gln Val Ala Leu Leu Ile Gln Tyr Phe Phe Gly Asn Gly  
 1 5 10 15  
 Ala Phe Tyr Val Arg Glu Ala Leu Arg Leu Thr Pro His Ala Gln Asn  
 20 25 30  
 Ile Val Leu Val Gly Ile Cys Pro Ser Leu Tyr Pro Glu His Pro Arg  
 35 40 45  
 Ser Phe Tyr Tyr Arg Val Ser Gly Asp Ile Gly Ser Arg Phe Asp Asp  
 50 55 60  
 Arg Gly Phe Val Asn Ser Gly Val Glu Thr Leu Pro Tyr Ser Ser Gly  
 65 70 75 80  
 Ser Phe Gly Ile Phe Trp Ile Ser Phe Thr Asp Pro Thr Phe Asn Phe  
 85 90 95  
 Ala Ile Val Asn Thr Phe Met Arg Thr Ala Gly Ile Asn Glu Val Ser  
 100 105 110  
 Arg Pro Met Thr Gln Asp Thr Glu Thr Ser Leu Ile Glu Met Arg Asp  
 115 120 125  
 Leu Ser Glu Gln Gln Glu Ala Asn Asn Thr Asp Ser Leu Glu Gln Glu  
 130 135 140  
 Glu Ser Leu Met Gly Ile Val Gly His Thr Val Gly Gly Val Ser Met  
 145 150 155 160  
 Thr Val Thr Ser Ser Pro Asn Ile Phe Tyr Arg Ile Gln Thr Leu Leu  
 165 170 175  
 Gly Leu Pro Glu Thr Leu Ala Glu Ala Glu Glu Asn Pro Thr Phe Pro  
 180 185 190  
 Asn Ser Thr Ile Asp Ser Leu Ala Glu Ile Met Met Asn Leu Val Arg  
 195 200 205  
 Ile Ser Asp Ala Val Ser Ile Phe Trp Ile Phe Pro Ile Val Asp Thr  
 210 215 220  
 Thr Tyr Asn Gly Val Leu Leu Ala Val Cys Ile Gly Phe Phe Gly Ile  
 225 230 235 240  
 Asn Gly Ile Cys Ser Thr Phe Leu Met Leu Thr Asn Pro Arg Ser Arg  
 245 250 255  
 Arg Asp Arg Trp Arg Asn Leu Arg Ile Met Val Leu Cys Tyr Arg Ser  
 260 265 270  
 Leu Gly Ser Gly Met Asn Leu Phe Asp Leu Ser Asn Asn Val Arg Met  
 275 280 285  
 Ala Ala Arg Arg His Val Thr Ser Cys Thr Val Ala Leu Tyr Ala Met  
 290 295 300  
 Val Thr Leu Phe Gly Trp Thr Val Ala Ile Gln Asp Ala Leu Gln Tyr  
 305 310 315 320  
 Gly Phe Pro Ser Val Arg Asp Ala Phe Tyr Arg Tyr Cys Leu Arg His  
 325 330 335  
 Arg Tyr Cys Leu Thr Gln Arg Asn Glu Asp Ser Leu Gln Thr Thr Gly  
 340 345 350

Thr Arg Phe Gln Val Thr Arg Thr His Leu Glu Asp Gln Gln Met Val  
                   355                                  360                                  365  
 Ala Ser Ile Leu Asn Leu Ser Val Phe Gly Leu Phe Phe Gly Phe Val  
                   370                                  375                                  380  
 Gly Leu Met Thr Thr Phe Gly Gly Leu Glu Ile Ser Pro Ser Cys Arg  
 385                                  390                                  395                                  400  
 Trp Asp Ala Ala Asn Asn Arg Thr Val Gly Ile Phe  
                                   405                                  410

&lt;210&gt;951

&lt;211&gt;117

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;951

Lys Ile Phe Gly Leu Glu Val Thr Val Met Glu Thr Pro Pro Thr Val  
   1                                  5                                  10                                  15  
 Cys Pro Thr Ile Pro Ile Lys Leu Ser Ser Cys Ser Lys Glu Ser Val  
                   20                                  25                                  30  
 Leu Phe Ala Ser Cys Cys Ser Leu Arg Ser Leu Ile Ser Ile Asn Glu  
                   35                                  40                                  45  
 Val Ser Val Ser Cys Val Met Gly Leu Glu Thr Ser Leu Ile Pro Ala  
                   50                                  55                                  60  
 Val Arg Ile Lys Val Phe Thr Ile Ala Lys Leu Asn Val Gly Ser Val  
                   65                                  70                                  75                                  80  
 Asn Glu Ile Gln Lys Ile Pro Lys Leu Pro Glu Glu Tyr Gly Arg Val  
                                   85                                  90                                  95  
 Ser Thr Pro Glu Phe Thr Asn Pro Leu Ser Ser Asn Arg Glu Pro Ile  
                                   100                                  105                                  110  
 Ser Pro Glu Thr Arg  
                                   115

&lt;210&gt;952

&lt;211&gt;431

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;952

Met Thr Trp Leu Ser Gly Leu Tyr Phe Ile Cys Ile Ala Ser Leu Ile  
   1                                  5                                  10                                  15  
 Phe Cys Ala Ile Gly Val Ile Leu Ala Gly Val Ile Leu Leu Ser Arg  
                   20                                  25                                  30  
 Lys Leu Phe Ile Lys Val His Pro Cys Lys Leu Lys Ile Asn Asp Asn  
                   35                                  40                                  45  
 Glu Glu Leu Thr Lys Thr Val Glu Ser Gly Gln Thr Leu Leu Val Ser  
                   50                                  55                                  60  
 Leu Leu Ser Ser Gly Ile Pro Ile Pro Ser Pro Cys Gly Gly Lys Ala  
                   65                                  70                                  75                                  80  
 Thr Cys Lys Gln Cys Lys Val Arg Val Val Lys Asn Ala Asp Glu Pro  
                                   85                                  90                                  95  
 Leu Glu Thr Asp Arg Ser Thr Phe Ser Lys Arg Gln Leu Glu Gly  
                                   100                                  105                                  110  
 Trp Arg Leu Ser Cys Gln Cys Lys Val Gln His Asp Met Ser Leu Glu  
                                   115                                  120                                  125  
 Ile Glu Glu Arg Tyr Leu Asn Ala Ser Ser Trp Glu Gly Thr Val Ile  
                   130                                  135                                  140  
 Ser Asn Asp Asn Val Ala Thr Phe Ile Lys Glu Leu Val Val Ala Val  
                   145                                  150                                  155                                  160  
 Asp Pro Asn Lys Pro Ile Pro Phe Lys Pro Gly Gly Tyr Leu Gln Ile  
                                   165                                  170                                  175  
 Thr Val Pro Ser Tyr Lys Thr Asn Ser Ser Asp Trp Lys Gln Thr Met  
                                   180                                  185                                  190  
 Ala Pro Glu Tyr Tyr Ser Asp Trp Glu His Phe His Leu Phe Asp Gln  
                   195                                  200                                  205  
 Val Ile Asp Asn Ser Gln Leu Pro Ala Asp Ser Ala Asn Lys Ala Tyr  
                   210                                  215                                  220  
 Ser Leu Ala Ser Tyr Pro Ala Glu Leu Pro Thr Ile Lys Phe Asn Ile  
                                   225                                  230                                  235                                  240

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ser | Thr | Met | Gln | Asn | Cys | Pro | His | Phe | Gly | Val | Cys | Gly | Gly | Cys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ser | Phe | Pro | Gln | Ser | Asn | Tyr | Ser | Asp | Ser | Leu | Lys | Lys | Lys | Glu | Glu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Leu | Leu | His | Gln | Leu | Phe | Ala | Pro | Leu | Val | Pro | Ser | Asp | Met | Ile | Ala |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Pro | Ile | Ile | Pro | Cys | Ser | Pro | Ser | Leu | Arg | Gly | Arg | Asn | Lys | Met | Glu |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Phe | Ser | Phe | Phe | Gln | Thr | Tyr | Glu | Gly | Glu | Lys | Ser | Leu | Gly | Phe | Ile |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Ser | Ser | Thr | Lys | Pro | Lys | Lys | Gly | Ile | Pro | Val | Thr | Thr | Cys | Leu | Leu |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ile | His | Glu | Gln | Thr | Met | Asp | Ile | Leu | Lys | Leu | Thr | Arg | Glu | Trp | Trp |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Asp | Lys | His | Pro | Glu | Leu | Met | Ala | Tyr | Phe | Pro | Pro | Lys | Asn | Lys | Gly |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |

Ser Leu Cys Thr Leu Thr Val Arg Thr Gly Ser Pro Gln Gln Asn Phe  
 130 135 140  
 Met Val Ile Leu Thr Thr Ser Gly Thr Pro Glu Tyr Arg Val Asn Glu  
 145 150 155 160  
 Ala Cys Ile Asp Glu Trp Lys Glu Ile Leu Leu Ser Ser Ser Leu Asn  
 165 170 175  
 Ile Ala Ser Ile Tyr Trp Glu Glu Lys Val Ala Ala Arg Gly Ile Ser  
 180 185 190  
 Thr Tyr Tyr Glu Thr Lys Leu Leu Tyr Gly Ala Pro Ser Ile Gln Gln  
 195 200 205  
 Lys Leu Ser Leu Pro Ser Asp Gly Asn Ser Ala Ser Phe Ser Leu Arg  
 210 215 220  
 Pro Arg Ser Phe Phe Gln Pro Gln Ile Thr Gln Ala Ala Lys Ile Ile  
 225 230 235 240  
 Glu Thr Ala Lys Glu Phe Ile Asn Pro Glu Gly Ser Glu Thr Leu Leu  
 245 250 255  
 Asp Leu Tyr Cys Gly Ala Gly Thr Ile Gly Ile Met Leu Ser Pro Tyr  
 260 265 270  
 Val Lys Asn Val Ile Gly Val Glu Ile Ile Pro Asp Ala Val Ala Ser  
 275 280 285  
 Ala Gln Glu Asn Ile Lys Ala Asn Asn Lys Glu Asp Cys Val Glu Val  
 290 295 300  
 Tyr Leu Glu Asp Ala Lys Ala Phe Cys Lys Arg Asn Glu Asn Cys Lys  
 305 310 315 320  
 Ala Pro Asp Val Ile Ile Ile Asp Pro Pro Arg Cys Gly Met Gln Ser  
 325 330 335  
 Lys Val Leu Lys Tyr Ile Leu Arg Ile Gly Ser Pro Lys Ile Val Tyr  
 340 345 350  
 Ile Ser Cys Asn Pro Lys Thr Gln Phe Gln Glu Cys Ala Asp Leu Ile  
 355 360 365  
 Ser Gly Gly Tyr Arg Ile Lys Lys Met Gln Pro Ile Asp Gln Phe Pro  
 370 375 380  
 Tyr Ser Thr His Leu Glu Asn Ile Ile Leu Leu Glu Arg Glu Ile Asp  
 385 390 395 400  
 Leu

&lt;210&gt;955

&lt;211&gt;123

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;955

Met Ala Leu Lys Asp Thr Ala Lys Lys Met Lys Asp Leu Leu Asp Ser  
 1 5 10 15  
 Ile Gln His Asp Leu Ala Lys Ala Glu Lys Gly Asn Lys Ala Ala Ala  
 20 25 30  
 Gln Arg Val Arg Thr Asp Ser Ile Lys Leu Glu Lys Val Ala Lys Leu  
 35 40 45  
 Tyr Arg Lys Glu Ser Ile Lys Ala Glu Lys Ser Gly Leu Leu Lys Arg  
 50 55 60  
 Lys Pro Ser Thr Lys Ala Pro Ala Lys Val Lys Lys Thr Ala Glu Lys  
 65 70 75 80  
 Lys Ala Pro Lys Lys Ser Ser Ala Ala Ala Lys Thr Ser Lys Ala  
 85 90 95  
 Val Lys Ala Ser Lys Pro Ala Ser Lys Lys Thr Ala Ala Lys Lys Val  
 100 105 110  
 Lys Lys Pro Ser Lys Ala Arg Gly Phe Arg Lys  
 115 120

&lt;210&gt;956

&lt;211&gt;822

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;956

Met Lys Lys Leu Tyr His Pro Thr Leu Phe Leu Arg Pro Leu Ile Arg  
 1 5 10 15

Leu Ser Leu Ile Phe Ala Leu Ser Leu Thr Leu Ile Ser Gly Asn Phe  
 20 25 30  
 Pro Gln Gln Lys Ser Phe Gly His Cys Cys Ala Asp Met His Ser Ala  
 35 40 45  
 Leu Ile Ser Gly Lys Asn Cys Glu Glu Leu Phe Ala Asp Phe Ile Glu  
 50 55 60  
 Arg Val Leu Ala Asp Arg Glu Thr Leu Thr Ala Arg Asp Trp Gly Thr  
 65 70 75 80  
 Val Val Val Leu Val Arg Glu Tyr Leu Leu Lys Cys Ile Arg Lys Gly  
 85 90 95  
 Asp Cys Asp Tyr Gly Val Lys Ile Leu Gln Lys Leu Leu Ala Leu Arg  
 100 105 110  
 Leu Pro Lys Asp Ala Arg Lys Asp Leu Gln Ile Leu Trp His Arg Leu  
 115 120 125  
 Asn Pro Glu Gln Ala Pro Leu Arg Asp Val Val Asp Gln Leu Phe Thr  
 130 135 140  
 Ile Gly Cys His Glu Ser Leu Gln Asp His Leu Leu Phe Glu Leu Tyr  
 145 150 155 160  
 Thr Val Thr Leu His Ser Gly Tyr Glu Asn Arg Lys Gln Asp Met Leu  
 165 170 175  
 Leu Ala Lys Glu Gln Gly Asp Tyr Lys Lys Ala Ile Glu Leu Ala Lys  
 180 185 190  
 Glu Leu Val Ala Ala Leu Glu Lys Gly Ser Cys Ser Pro His Pro Glu  
 195 200 205  
 Ile Val Gln Ile Glu Lys Thr Phe Leu Gln Lys Thr Leu Leu Ala Leu  
 210 215 220  
 Gln Ile Lys Val Ala Gln Glu Ala Gln Glu Ser Cys Asp Ala Leu Leu  
 225 230 235 240  
 Thr Pro Tyr Cys Leu Ser Glu Ile Ala Tyr Thr Glu Ala Met Asp Ala  
 245 250 255  
 Leu Val Leu Arg Ile Ala Arg Gly Glu Val Ser Arg Thr Asn Glu Val  
 260 265 270  
 Asp Ser Val Leu Leu Ser His Ala Leu Gln His Leu Pro Phe Ala Arg  
 275 280 285  
 Glu Lys Ala Ile Pro Glu Leu Glu Val Leu Ile Asp His Gly Ala Tyr  
 290 295 300  
 Leu Glu Ser Thr Leu Leu Tyr Tyr Ala Tyr Phe Ser Leu Leu Glu Leu  
 305 310 315 320  
 Tyr His Gln Asn Lys Asp Phe Ala Ser Leu Glu Arg Leu Leu Glu Lys  
 325 330 335  
 Gly Asp Ala Val Phe Val Pro Glu His Pro Tyr Phe Pro Glu Tyr Gly  
 340 345 350  
 Phe Phe Leu Gly Ala Tyr Phe Tyr Ala Lys Gly Lys Tyr Glu Ser Ala  
 355 360 365  
 Glu Lys Val Phe Leu Gln Ile Ile Asp Pro Ala Val Lys Leu Gly Ala  
 370 375 380  
 Thr Phe Ala Arg Ala Tyr Glu Tyr Leu Gly Cys Ile Ala Tyr Val Gln  
 385 390 395 400  
 Asn His Tyr Glu Lys Ala Glu Glu Tyr Phe Leu Arg Ala Tyr Lys Ser  
 405 410 415  
 Trp Gly Arg Glu Glu Ser Gly Ile Gly Leu Phe Leu Ala Tyr Ala Val  
 420 425 430  
 Gln Lys Lys Lys Thr Ala Cys Glu Asp Met Leu Tyr His Pro Lys Phe  
 435 440 445  
 Ser Phe Thr Tyr Arg His Leu Leu Asp Ser Leu Cys Ser Leu Ser Tyr  
 450 455 460  
 Pro His Gly Glu Asn Lys Gly Ser Ser Ala Ile Gln Arg Val His Arg  
 465 470 475 480  
 Ala Val Pro Glu Leu Ser Glu Ile Tyr Ser Arg Cys Ile Tyr Asp Met  
 485 490 495  
 Ile Lys Tyr Arg Asn Val Thr Tyr Thr His Pro Ile Ile Glu Leu Ala  
 500 505 510  
 Tyr Asn Gln Val Arg Asn Leu Glu Lys Arg Asn Leu Glu Glu Ile Cys  
 515 520 525

Arg Asp Ala Gln Asp Pro Glu Tyr Asp Lys Ala Leu Ala Phe Trp Gly  
 530 535 540  
 Ala Leu Gln Ser Gly Ala Ser Val Pro Arg Ser Leu Ile Glu Ser Ser  
 545 550 555 560  
 Asp Val Asp Glu Ala Gly Ile Thr Ile Arg Cys Tyr Glu Ala Leu Tyr  
 565 570 575  
 Phe His Asn Pro Asp Ala Ile Ala Met Leu Pro Gln Ala Phe Ser Glu  
 580 585 590  
 Glu Cys Asn Ser Trp Gln Thr Ala Leu Arg Leu Val Trp Thr Leu Val  
 595 600 605  
 Arg Pro Lys Gly Ala Pro Asn His Ala Lys Tyr Trp Asp His Leu Val  
 610 615 620  
 Leu Arg Pro His Gly Asp Ser Leu Tyr Phe Phe Gly Tyr Asp Leu Gln  
 625 630 635 640  
 Glu Tyr Leu Ile Gly Lys Glu Asp Ala Leu Lys His Leu Ser Val Phe  
 645 650 655  
 Ala Glu Leu Phe Pro Lys Ser Ser Leu Leu Ser Leu Val Tyr Tyr Leu  
 660 665 670  
 Gln Gly Tyr Ser Glu Ser Ser Ala Leu Arg Lys Val Gly Trp Phe Val  
 675 680 685  
 Lys Ala Leu Glu Glu Phe Thr Glu Ile Ser Trp Ser Gly Glu His Met  
 690 695 700  
 Lys Thr Trp Ala Tyr Ile Tyr Tyr Met Val Lys Leu Asp Leu Ala Asp  
 705 710 715 720  
 Thr Tyr Ile Ser Leu Gly Asn Phe Ser Gln Ala Val His Ile Leu Glu  
 725 730 735  
 Glu Val Lys Glu Asp Trp Gln Val Ala Ser His Pro Lys Leu His Phe  
 740 745 750  
 Leu Lys Gly Glu Asp Cys Tyr Leu Ala Met Glu Leu Arg Trp Val Glu  
 755 760 765  
 Gly Leu Ala Tyr Ala Tyr Phe Gln Leu His Glu Thr Ala His Leu Ser  
 770 775 780  
 Asn His Leu Leu Glu His Val Glu Lys Asn Leu Ile Ser Pro Arg Ser  
 785 790 795 800  
 Tyr Arg Asp Tyr Tyr Gly Glu Ser Leu Gln Arg Thr Leu Gly Leu Cys  
 805 810 815  
 Gln Arg Phe Leu Gly Val  
 820

&lt;210&gt;957

&lt;211&gt;150

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;957

His Gln Leu Arg Leu Ala Ser Arg Gln Leu Phe Ala Ser Gln Arg Leu  
 1 5 10 15  
 Trp His Ala Ile Cys Arg Arg Ala Ser Pro Leu Gly Asn Arg Leu Glu  
 20 25 30  
 Phe Ser Asn Leu Pro Ala Ser Thr Pro Gly Lys Thr Val Leu Ser Leu  
 35 40 45  
 Leu Ile Glu Gly Lys Trp Arg Glu Ser Glu Ala His Ala Phe Ala Ile  
 50 55 60  
 Ala Ala Leu Ser Glu Tyr Leu Asn Ile Asn Gln Lys Pro Asp Ala Phe  
 65 70 75 80  
 Ala Leu Phe Ser Ser Gln Asp Gly Met Pro Gln His Ala Val Gly Phe  
 85 90 95  
 Leu Glu Arg Lys Glu Arg Ile Leu Pro His Leu Pro Gly Asn Leu Lys  
 100 105 110  
 Ile Val Gly Gln Asn Ile Ala Gly Pro Gly Leu Asn Arg Cys Ile Ala  
 115 120 125  
 Ser Ala Tyr His Ala Ile Cys Asp Leu His Thr Glu Thr Leu Ala  
 130 135 140  
 Gln Pro Gln Ser Ser Leu  
 145 150

&lt;210&gt;958

&lt;211&gt;354

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;958

Ala Glu Arg Arg Phe Cys Val Lys Arg Ala Ile Ile Ile Gly Ala Gly  
 1 5 10 15  
 Ile Ser Gly Leu Ala Ala Gly Trp Trp Leu His Lys Lys Phe Pro Gln  
 20 25 30  
 Ala Glu Ile Leu Val Leu Asp Lys Glu Ala Tyr Ala Gly Gly Phe Val  
 35 40 45  
 Arg Thr Glu Ser Pro Gln Gly Phe Ser Phe Asp Leu Gly Pro Lys Gly  
 50 55 60  
 Phe Leu Thr Arg Gly Asp Gly Glu Tyr Thr Leu Lys Leu Ile His Glu  
 65 70 75 80  
 Leu Gly Leu Gln Asn Ser Leu Ile Phe Ser Asp Arg Ala Ala Lys Asn  
 85 90 95  
 Arg Phe Val Tyr Tyr Arg Gly Lys Ala Arg Lys Ile Ser Thr Trp Thr  
 100 105 110  
 Leu Leu Arg Lys Gly Leu Leu Pro Ser Leu Ile Lys Asp Phe Arg Ala  
 115 120 125  
 Pro Cys Tyr Thr Gln Asp Ser Ser Val Gln Asp Phe Leu Lys Arg His  
 130 135 140  
 Ser Ser Gln Asn Phe Thr Ser Tyr Ile Leu Asp Pro Leu Ile Thr Ala  
 145 150 155 160  
 Ile Arg Ala Gly His Ser Ser Ile Leu Ser Thr His Met Ala Phe Pro  
 165 170 175  
 Glu Leu Ala Lys Arg Glu Ala Ser Ser Gly Ser Leu Leu Arg Ser Tyr  
 180 185 190  
 Leu Lys Asn Arg Ser Pro Lys Lys Ser Lys Thr Asp Arg Tyr Leu Ala  
 195 200 205  
 Ser Leu Ser Pro Ser Met Gly Thr Leu Ile Thr Thr Ile Gln Glu Lys  
 210 215 220  
 Leu Pro Ala Thr Trp Lys Phe Ser Thr Ser Val Thr His Ile Asp Cys  
 225 230 235 240  
 Ser Pro Lys Glu Ala Cys Val Thr Thr Pro Ser Glu Thr Phe Phe Ala  
 245 250 255  
 Asp Met Val Ile Tyr Thr Gly Pro Leu Gln Gln Leu Pro Val Leu Leu  
 260 265 270  
 Pro Asn Tyr Gly Ile Glu Asn Leu Ser Lys Arg Val Leu Pro Trp Asn  
 275 280 285  
 Leu Ser Ser Ile Ser Leu Gly Trp His His Ala Asn Phe Ser Leu Pro  
 290 295 300  
 Lys Gly Tyr Gly Met Leu Phe Ala Asp Glu Leu Pro Leu Leu Gly Ile  
 305 310 315 320  
 Val Trp Asn Ser Gln Ile Phe Pro Gln Val Arg Gln Gly Lys Gln Cys  
 325 330 335  
 Ser Pro Phe Ser Leu Lys Ala Asn Gly Gly Asn Gln Lys Leu Met Pro  
 340 345 350  
 Leu Arg

&lt;210&gt;959

&lt;211&gt;460

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;959

Phe Leu Met Phe Asn Val Asn Phe Lys Phe Leu Glu Gly Leu His Gln  
 1 5 10 15  
 Pro Ala Pro Arg Tyr Thr Ser Tyr Pro Thr Ala Leu Glu Trp Glu Pro  
 20 25 30  
 Ser Asp Ala Ala Pro Ala Leu Leu Ala Phe Gln Arg Xaa Arg Xaa Asn  
 35 40 45  
 Xaa Gln Pro Leu Ser Leu Tyr Phe His Ile Pro Phe Cys Gln Ser Met  
 50 55 60  
 Cys Leu Tyr Cys Gly Cys Ser Val Val Leu Asn Arg Arg Glu Asp Ile



|                 |                     |                     |                 |
|-----------------|---------------------|---------------------|-----------------|
| 65              | 70                  | 75                  | 80              |
| Val Glu Ala Tyr | Ile Asn Thr Leu Ile | Gln Glu Met Lys Leu | Val Val         |
|                 | 85                  | 90                  | 95              |
| Glu Thr Ile Gly | Phe Arg Pro Gln Val | Ser Arg Ile His Phe | Gly Gly         |
|                 | 100                 | 105                 | 110             |
| Gly Thr Pro Ser | Arg Leu Ser Arg     | Glu Leu Phe Thr     | Leu Leu Phe Asp |
|                 | 115                 | 120                 | 125             |
| His Ile His Lys | Leu Phe Asp Leu Ser | His Ala Glu Glu     | Ile Ala Ile     |
|                 | 130                 | 135                 | 140             |
| Glu Val Asp Pro | Arg Ser Leu Arg Asn | Asp Met Glu Lys     | Ala Asp Phe     |
|                 | 145                 | 150                 | 155             |
| Phe Gln Asn Val | Gly Phe Asn Arg Val | Ser Leu Gly Val     | Gln Asp Thr     |
|                 | 165                 | 170                 | 175             |
| Gln Ala Asp Val | Gln Glu Ala Val Arg | Arg Arg Gln Ser     | His Glu Glu     |
|                 | 180                 | 185                 | 190             |
| Ser Leu Lys Ala | Tyr Glu Lys Phe Lys | Glu Leu Ala Phe     | Gln Ser Ile     |
|                 | 195                 | 200                 | 205             |
| Asn Ile Asp Leu | Ile Tyr Gly Leu Pro | Lys Gln Thr Lys     | Glu Ser Phe     |
|                 | 210                 | 215                 | 220             |
| Ser Lys Thr Ile | Gln Asp Ile Leu Ala | Met Tyr Pro Asp     | Arg Leu Ala     |
|                 | 225                 | 230                 | 235             |
| Leu Phe Ser Phe | Ala Ser Val Pro Trp | Ile Lys Pro His     | Gln Lys Ala     |
|                 | 245                 | 250                 | 255             |
| Met Lys Ala Ser | Asp Met Pro Ser Met | Glu Glu Lys Phe     | Ala Ile Tyr     |
|                 | 260                 | 265                 | 270             |
| Ser Gln Ser Arg | His Leu Leu Thr Lys | Ala Gly Tyr Gln     | Ala Ile Gly     |
|                 | 275                 | 280                 | 285             |
| Met Asp His Phe | Ser Leu Pro His Asp | Pro Leu Thr Leu     | Ala Phe Lys     |
|                 | 290                 | 295                 | 300             |
| Asn Lys Thr Leu | Ile Arg Asn Phe Gln | Gly Tyr Ser Leu     | Pro Pro Glu     |
|                 | 305                 | 310                 | 315             |
| Glu Asp Leu Leu | Gly Leu Gly Met Thr | Ser Thr Ser Phe     | Ile Arg Gly     |
|                 | 325                 | 330                 | 335             |
| Ile Tyr Leu Gln | Asn Ala Lys Thr Leu | Glu Glu Tyr His     | Asn Thr Val     |
|                 | 340                 | 345                 | 350             |
| Leu Arg Gly Thr | Phe Ala Thr Val Lys | Ser Lys Ile Leu     | Thr Glu Asp     |
|                 | 355                 | 360                 | 365             |
| Asp Arg Ile Arg | Lys Trp Ala Ile His | Lys Leu Met Cys     | Thr Phe Thr     |
|                 | 370                 | 375                 | 380             |
| Ile Asn Lys Glu | Glu Phe Phe Asn Leu | Phe Gly Tyr Glu     | Phe Asp Thr     |
|                 | 385                 | 390                 | 395             |
| Tyr Phe Ile Glu | Ser Arg Asp Arg Leu | Ile Ser Met Glu     | Thr Thr Gly     |
|                 | 405                 | 410                 | 415             |
| Leu Ile His Asn | Ser Pro Gly Ser Leu | Lys Val Thr Pro     | Leu Gly Glu     |
|                 | 420                 | 425                 | 430             |
| Leu Phe Val Arg | Val Ile Ala Thr Ala | Phe Asp His Tyr     | Phe Leu Asn     |
|                 | 435                 | 440                 | 445             |
| Lys Val Ser Lys | Lys Glu Cys Phe Ser | Ala Ser Ile         |                 |
|                 | 450                 | 455                 | 460             |

&lt;210&gt;960

&lt;211&gt;281

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;960

|                 |                     |                     |                 |
|-----------------|---------------------|---------------------|-----------------|
| Ser Tyr Cys Arg | Ala Thr Leu Leu Gly | Pro Ser Leu Leu His | Val Asp         |
| 1               | 5                   | 10                  | 15              |
| Ala Ala Ile Leu | Phe Ala Asp Ile Leu | Ser Ile Leu Asp     | Gly Phe Ala     |
|                 | 20                  | 25                  | 30              |
| Val Thr Tyr Asp | Phe Ala Pro Gly     | Pro Arg Ile Gln     | Phe Ser Pro Glu |
|                 | 35                  | 40                  | 45              |
| Gln Pro Phe Thr | Phe Thr Ser Asp     | Pro Gln Thr Ile     | Phe Ser Tyr Leu |
|                 | 50                  | 55                  | 60              |
| Leu Asp Ala Ile | Arg Thr Leu Lys     | Gln Lys Leu Pro     | Val Pro Leu Ile |
|                 | 65                  | 70                  | 75              |

Val Phe Ala Ala Ser Pro Phe Thr Leu Ala Cys Tyr Leu Ile Asp Gly  
                             85                            90                            95  
 Gly Ala Ser Lys Asp Phe Ser Lys Thr Met Ser Phe Leu Tyr Val Tyr  
                             100                            105                            110  
 Pro Glu Lys Phe Asp Gln Leu Ile Ser Thr Ile Ile Glu Gly Thr Ala  
                             115                            120                            125  
 Ile Tyr Leu Lys Thr Gln Met Asp Ala Gly Ala Ala Val Gln Leu  
                             130                            135                            140  
 Phe Glu Ser Ser Ser Leu Arg Leu Pro Ser Ala Leu Phe Thr Arg Tyr  
                             145                            150                            155                            160  
 Val Thr Glu Pro Asn Arg Arg Leu Ile Ala Lys Leu Lys Glu Gln Ala  
                             165                            170                            175  
 Ile Pro Val Ser Leu Phe Cys Arg Cys Phe Glu Glu Asn Phe Tyr Thr  
                             180                            185                            190  
 Leu Gln Ala Thr Gln Ala Asp Thr Leu His Pro Asp Tyr His Val Asp  
                             195                            200                            205  
 Leu His Arg Ile Gln Lys Asn Leu Met Leu Ser Leu Gln Gly Asn Leu  
                             210                            215                            220  
 Asp Pro Ala Ile Phe Leu Leu Pro Gln Glu Lys Leu Leu His Tyr Val  
                             225                            230                            235                            240  
 Glu Ala Phe Leu Val Pro Leu Arg Thr Tyr Pro Asn Phe Ile Phe Asn  
                             245                            250                            255  
 Ser Gly His Gly Ile Leu Pro Glu Thr Pro Leu Glu Asn Val Gln Leu  
                             260                            265                            270  
 Val Val Ser Tyr Val Gln Arg Gln Leu  
                             275                            280

&lt;210&gt;961

&lt;211&gt;1085

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;961

Met Ala Met Asp Phe Asn Pro Val Asn Leu Asp Phe Ser Ile Ser Lys  
                             1                            5                            10                            15  
 Glu Phe Lys Glu Glu Thr Leu Pro Leu Leu Glu Asn Ile His Pro  
                             20                            25                            30  
 Gly Ala Thr Ala Phe Leu Ala Ala Lys Met Phe His Asp Cys Arg Ala  
                             35                            40                            45  
 Ser Val Ile Met Ile Thr Thr Pro Ala Arg Leu Asp Asp Leu Phe Glu  
                             50                            55                            60  
 Asn Leu Arg Thr Phe Leu Asp Gln Ala Pro Val Glu Phe Pro Ser Ser  
                             65                            70                            75                            80  
 Glu Ile Asp Leu Ser Pro Lys Leu Val Asn Ile Asp Ala Val Gly Lys  
                             85                            90                            95  
 Arg Asp His Leu Leu Tyr Ser Leu Asn Gln His Arg Ala Pro Ile Phe  
                             100                            105                            110  
 Cys Val Thr Thr Leu Lys Ala Leu Leu Glu Lys Thr Arg Ser Pro Gln  
                             115                            120                            125  
 Ala Thr Ser Gln Gln His Leu Asp Leu Ala Val Gly Asp Val Leu Asp  
                             130                            135                            140  
 Pro Glu Ala Thr Thr Glu Leu Cys Lys Ser Leu Glu Tyr Ser Gln Val  
                             145                            150                            155                            160  
 Met Leu Thr Ser Glu Lys Gly Glu Phe Ser Cys Arg Gly Gly Ile Val  
                             165                            170                            175  
 Asp Ile Phe Pro Leu Ser Ser Pro Glu Pro Phe Arg Ile Glu Phe Trp  
                             180                            185                            190  
 Gly Glu Lys Ile Ile Ser Ile Arg Ser Tyr Asn Pro Ser Asp Gln Leu  
                             195                            200                            205  
 Ser Thr Gly Lys Val Ser Lys Ile Ser Ile Ser Pro Ala Tyr Thr Glu  
                             210                            215                            220  
 Glu Ala Ser Gly Gly Asn Tyr Ser His Ser Leu Leu Asp Tyr Phe Ser  
                             225                            230                            235                            240  
 Thr Pro Pro Leu Tyr Leu Phe Asp Asn Leu Glu Ile Leu Glu Asp Asp  
                             245                            250                            255  
 Phe Ala Asp Ile Ser Gly Thr Leu Ser Ser Leu Pro Asp Arg Phe Phe

1001

|                         |                         |                     |
|-------------------------|-------------------------|---------------------|
| 770                     | 775                     | 780                 |
| Leu Ala Glu Thr Ile Arg | Asn Leu Ile Pro Glu     | Ala Arg Ile Gly Val |
| 785                     | 790                     | 795                 |
| Ala His Gly Gln Met Gly | Ala Glu Asp Leu Ser     | Asn Ile Phe Thr Lys |
|                         | 805                     | 810                 |
| Phe Lys Asn Gln Lys Thr | Asp Ile Leu Val Ala Thr | Ala Leu Ile Glu     |
|                         | 820                     | 825                 |
| Asn Gly Ile Asp Ile Pro | Asn Ala Asn Thr Ile Leu | Ile Asp His Ala     |
|                         | 835                     | 840                 |
| Asp Lys Phe Gly Met Ala | Asp Leu Tyr Gln Met Lys | Gly Arg Val Gly     |
|                         | 850                     | 855                 |
| Arg Trp Asn Lys Lys Ala | Tyr Cys Tyr Phe Leu Val | Pro His Leu Asp     |
|                         | 865                     | 870                 |
| Arg Leu Ser Gly Pro Ala | Ala Lys Arg Leu Ala Ala | Leu Asn Lys Gln     |
|                         | 885                     | 890                 |
| Glu Tyr Gly Gly Gly Met | Lys Ile Ala Leu His Asp | Leu Glu Ile Arg     |
|                         | 900                     | 905                 |
| Gly Ala Gly Asn Ile Leu | Gly Thr Asp Gln Ser Gly | His Ile Gly Thr     |
|                         | 915                     | 920                 |
| Ile Gly Phe Asn Leu Tyr | Cys Lys Leu Leu Lys Lys | Ala Val Ser Ala     |
|                         | 930                     | 935                 |
| Leu Lys Lys His Thr Ser | Pro Leu Leu Phe Asn Asp | Asp Val Lys Ile     |
|                         | 945                     | 950                 |
| Glu Phe Pro Tyr Asn Ser | Arg Ile Pro Asp Thr Tyr | Ile Glu Thr Gly     |
|                         | 965                     | 970                 |
| Ser Met Arg Ile Glu Phe | Tyr Gln Lys Ile Gly Asn | Ala Glu Ser Ser     |
|                         | 980                     | 985                 |
| Glu Glu Leu Thr Ala Ile | Gln Glu Glu Met Arg Asp | Arg Phe Gly Pro     |
|                         | 995                     | 1000                |
| Leu Pro Gln Glu Ile Cys | Trp Leu Phe Ala Leu Ala | Glu Ile Arg Leu     |
|                         | 1010                    | 1015                |
| Phe Ala Leu Gln His Gly | Ile Ser Ser Ile Lys Gly | Thr Ala Asn Ala     |
|                         | 1025                    | 1030                |
| Leu Tyr Val Gln Lys Cys | Leu Ser Lys Ser Glu Gln | Thr Lys Lys Thr     |
|                         | 1045                    | 1050                |
| Leu Pro Tyr Ala Leu Ser | Pro Thr Pro Glu Leu Leu | Val Lys Glu Val     |
|                         | 1060                    | 1065                |
| Ile Glu Ser Ile Glu Arg | Gly Phe Leu Ile Asn Ala | Ser                 |
|                         | 1075                    | 1080                |
|                         |                         | 1085                |

&lt;210&gt;962

&lt;211&gt;182

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;962

|                         |                     |                     |
|-------------------------|---------------------|---------------------|
| Gly Gly His Trp Arg Lys | Ser Arg Ser Tyr Ser | Thr Pro Thr Lys Arg |
| 1                       | 5                   | 10                  |
| Ser Ile Arg Arg Asp Cys | Thr Leu Leu Gln Val | Pro Arg Asp Gln Ile |
|                         | 20                  | 25                  |
| Val Ser Arg Leu Thr Ala | Thr Leu Asp Glu Arg | Lys Gln Gln Asp Lys |
|                         | 35                  | 40                  |
| Arg Leu Asn Glu Leu Glu | Asn Ser Leu Ile Gln | Thr Lys Leu Asp Lys |
|                         | 50                  | 55                  |
| Leu Ile His Asn Cys His | Gln Arg Gln Gly Ile | Thr Cys Leu Val His |
|                         | 65                  | 70                  |
| His Leu Ala Glu His Glu | Asn His Arg Leu Gln | Gln Tyr Ala Gln Cys |
|                         | 85                  | 90                  |
| Leu His Gln Arg Ile Pro | Glu Lys Leu Ile Ser | Leu Trp Thr Thr Glu |
|                         | 100                 | 105                 |
| Lys Asn Gly Lys Tyr Ile | Val Leu Ser Arg Val | Ser Asp Asp Leu Ile |
|                         | 115                 | 120                 |
| Thr Gln Gly Val His Ala | Gln Asp Leu Leu Lys | Ala Val Leu Thr Pro |
|                         | 130                 | 135                 |
| Cys Gly Gly Arg Trp Gly | Gly Lys Asp Gln Ser | Ala Gln Gly Ser Ala |
|                         | 145                 | 150                 |
|                         |                     | 155                 |
|                         |                     | 160                 |

1003

435                      440                      445  
 Val Thr Gly Glu Lys Ala Glu Ala Thr Val His Gln Gln Ser Glu Val  
 450                      455                      460  
 Leu Glu Glu Ile Val Arg Tyr Tyr Lys Ser Leu Gly Ile Arg Leu Ser  
 465                      470                      475                      480  
 Pro Gly

&lt;210&gt;964

&lt;211&gt;129

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;964

Ser Arg Arg Ile Tyr Ala Thr Val His Glu Lys Asp Asp Glu Ala Phe  
 1                      5                      10                      15  
 Ala Leu Trp Glu Ala Tyr Leu Pro Thr Asp Arg Ile Phe Arg Leu Thr  
 20                      25                      30  
 Asp Lys Asp Asn Phe Trp Ser Met Ala Asn Thr Gly Pro Cys Gly Tyr  
 35                      40                      45  
 Cys Ser Glu Leu Leu Phe Asp Arg Gly Pro Ser Phe Gly Asn Ala Ser  
 50                      55                      60  
 Ser Pro Leu Asp Asp Thr Asp Gly Glu Arg Phe Leu Glu Tyr Trp Asn  
 65                      70                      75                      80  
 Leu Val Phe Met Glu Phe Asn Arg Thr Ser Glu Gly Ser Leu Leu Ala  
 85                      90                      95  
 Leu Pro Asn Lys His Val Asp Thr Gly Ala Gly Leu Glu Arg Leu Val  
 100                      105                      110  
 Ser Leu Ile Ala Gly Thr His Thr Val Phe Glu Ala Asp Val Leu Arg  
 115                      120                      125  
 Asp

&lt;210&gt;965

&lt;211&gt;195

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;965

Met Leu Ser Asn Thr Ile Arg Ser Asn Phe Leu Lys Phe Tyr Ala Asn  
 1                      5                      10                      15  
 Arg His His Thr Ile Leu Pro Ser Ser Pro Val Phe Pro His Asn Asp  
 20                      25                      30  
 Pro Ser Ile Leu Phe Thr Asn Ala Gly Met Asn Gln Phe Lys Asp Ile  
 35                      40                      45  
 Phe Leu Asn Lys Glu Lys Val Ser Tyr Ser Arg Ala Thr Thr Ser Gln  
 50                      55                      60  
 Lys Cys Ile Arg Ala Gly Gly Lys His Asn Asp Leu Asp Asn Val Gly  
 65                      70                      75                      80  
 His Thr Ser Arg His Leu Thr Phe Phe Glu Met Leu Gly Asn Phe Ser  
 85                      90                      95  
 Phe Gly Asp Tyr Phe Lys Ala Glu Ala Ile Ala Phe Ala Trp Glu Val  
 100                      105                      110  
 Ser Leu Ser Val Phe Asn Phe Asn Pro Glu Gly Phe Thr Leu Pro Tyr  
 115                      120                      125  
 Met Lys Lys Thr Met Lys His Leu Leu Phe Gly Lys His Ile Phe Leu  
 130                      135                      140  
 Gln Ile Val Phe Ser Val Leu Gln Thr Lys Thr Thr Ser Gly Ala Trp  
 145                      150                      155                      160  
 Gln Thr Gln Ala Pro Val Ala Ile Val Pro Ser Ser Ser Leu Ile Val  
 165                      170                      175  
 Ala Pro Val Leu Glu Thr Pro Leu Leu Pro Leu Thr Ile Leu Met Glu  
 180                      185                      190  
 Ser Val Ser  
 195

&lt;210&gt;966

&lt;211&gt;692

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;966

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Leu Gly Ile Ser Tyr Ser Cys Cys Phe Tyr Ile Glu Gly Leu Gln Gly
  1           5           10           15
Leu Leu Met Ile Asn Lys Glu Leu Asp Ile Gly Ile Leu Gly Lys Ile
          20           25           30
Ala Gly Ala Ile Lys Gln Ile Ser Ile Glu Ser Ile Gln Lys Ala Ser
          35           40           45
Ser Gly His Pro Gly Leu Pro Leu Gly Cys Ala Glu Leu Ala Ala Tyr
          50           55           60
Leu Tyr Gly Tyr Val Leu Arg Gln Asn Pro Arg Asp Pro His Trp Ile
          65           70           75           80
Asn Arg Asp Arg Phe Val Leu Ser Ala Gly His Gly Ser Ala Leu Leu
          85           90           95
Tyr Ser Cys Leu His Leu Ala Gly Phe Asp Val Ser Leu Glu Asp Leu
          100          105          110
Gln Glu Phe Arg Gln Leu His Ser Arg Thr Pro Gly His Pro Glu Tyr
          115          120          125
Gly Glu Thr Val Gly Val Glu Ala Thr Thr Gly Pro Leu Gly Gln Gly
          130          135          140
Leu Gly Asn Ala Val Gly Met Ala Leu Ser Met Lys Met Leu Glu Ser
          145          150          155          160
Arg Phe Asn Arg Pro Gly His Glu Ile Phe Asn Gly Lys Ile Tyr Cys
          165          170          175
Leu Ala Gly Asp Gly Cys Phe Met Glu Gly Val Ser His Glu Val Cys
          180          185          190
Ser Phe Ala Gly Ser Leu Asn Leu Asn Asn Leu Val Val Ile Tyr Asp
          195          200          205
Tyr Asn Asn Val Val Leu Asp Gly Tyr Leu Asn Glu Ile Ser Val Glu
          210          215          220
Asp Thr Lys Lys Arg Phe Glu Ala Tyr Gly Trp Glu Tyr Tyr Glu Ile
          225          230          235          240
Asp Gly Tyr Asp Phe Thr His Ile His Glu Thr Phe Ser Ser Ile Lys
          245          250          255
Arg Gly Gln Glu Arg Pro Val Leu Val Ile Ala His Thr Ile Ile Gly
          260          265          270
His Gly Ser Pro Lys Glu Gly Thr Asn Lys Ala His Gly Ser Pro Leu
          275          280          285
Gly Val Glu Gly Thr His Glu Thr Lys Gln Phe Trp His Leu Pro Glu
          290          295          300
Glu Lys Phe Phe Val Pro Pro Ala Val Lys Asn Phe Phe Ala His Lys
          305          310          315          320
Ile Gln Glu Asp Arg Lys Ala Gln Glu Gln Trp Leu Asp Glu Val Arg
          325          330          335
Val Trp Ser Lys Gln Phe Pro Glu Leu His Glu Glu Phe Val Ala Leu
          340          345          350
Thr Ser His Lys Leu Pro Lys Asn Leu Glu Ser Leu Val Gln Ser Val
          355          360          365
Glu Met Pro Asp Ser Ile Ala Gly Arg Ala Ala Ser Asn Lys Leu Ile
          370          375          380
Gln Val Leu Val Gln His Ile Pro Tyr Leu Ile Gly Gly Ser Ala Asp
          385          390          395          400
Leu Ser Ser Ser Asp Gly Thr Trp Ile Ala Asn Glu Lys Val Ile His
          405          410          415
Thr Tyr Asp Phe Ser Gly Arg Asn Ile Lys Tyr Gly Val Arg Glu Phe
          420          425          430
Gly Met Ala Thr Ile Met Asn Gly Leu Ala Tyr Ser Gln Val Phe Arg
          435          440          445
Pro Phe Gly Gly Thr Phe Leu Val Phe Ser Asp Tyr Met Arg Asn Ala
          450          455          460
Ile Arg Leu Ala Ala Leu Ser Lys Leu Pro Val Ile Tyr Gln Phe Thr
          465          470          475          480
His Asp Ser Ile Phe Val Gly Glu Asp Gly Pro Thr His Gln Pro Val
          485          490          495

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Glu Gln Leu Met Ser Leu Arg Ala Ile Pro Gly Leu Tyr Val Ile Arg  
 500 505 510  
 Pro Ala Asp Ala Asn Glu Val Arg Gly Ala Trp Ile Ala Gly Leu Lys  
 515 520 525  
 His Thr Gly Pro Thr Val Ile Val Leu Ser Arg Gln Ala Leu Pro Thr  
 530 535 540  
 Leu Pro Ala Ala His Arg Pro Phe Lys Asp Gly Val Gly Arg Gly Ala  
 545 550 555 560  
 Tyr Ile Val Leu Lys Glu Ser Gly Glu Lys Pro Asp Tyr Thr Leu Phe  
 565 570 575  
 Ala Thr Gly Ser Glu Val Ser Leu Ala Leu Ser Val Ala Lys Glu Leu  
 580 585 590  
 Glu His Leu Asp Lys Gln Val Arg Val Val Ser Phe Pro Cys Trp Glu  
 595 600 605  
 Leu Phe Glu Ala Gln Asp Val Asp Tyr Lys Gln Ser Ile Val Gly Gly  
 610 615 620  
 Asp Leu Gly Ile Arg Val Ser Ile Glu Ala Gly Ser Ala Leu Gly Trp  
 625 630 635 640  
 Tyr Lys Tyr Ile Gly Ser Glu Gly Leu Leu Ser Leu Trp Ile Asp Ser  
 645 650 655  
 Asp Thr Gln Glu Leu Leu Met Met Tyr Gln Lys Asn Val Ala Leu Leu  
 660 665 670  
 Gln Ser Lys Ser Phe Arg Gly Phe Ser Leu Asn Ser His Cys Arg Lys  
 675 680 685  
 Phe Gln Ser Arg  
 690  
 <210>967  
 <211>312  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>967  
 Pro Arg Asn Asp Lys Asn Ala Lys Asn Leu Arg Arg Lys His Tyr Lys  
 1 5 10 15  
 Gly Glu Arg Val Ser Lys His Thr Ser Glu Ser Arg Ile Ala Gln Asp  
 20 25 30  
 Met Leu Glu Arg Tyr Ser Gly Ser Ser Val Lys Gln Phe Cys Pro Tyr  
 35 40 45  
 Leu Leu Leu Thr Asn Phe Ser Tyr Tyr Ile Gln Thr Phe Ala Lys Leu  
 50 55 60  
 His Gly Val Pro Val Phe Glu Gly Ser Met Phe Ser Ala Ala His Ala  
 65 70 75 80  
 Pro His Leu Lys Thr Ser Ile Leu Asp Phe Lys Leu Gly Ser Pro Gly  
 85 90 95  
 Ala Ala Leu Thr Ile Asp Leu Cys Ser Phe Leu Pro Asp Leu Lys Ala  
 100 105 110  
 Ala Leu Met Leu Gly Met Cys Gly Gly Leu Arg Ser His Tyr Gln Val  
 115 120 125  
 Gly Asp Tyr Phe Val Pro Val Ala Ser Ile Arg Gly Glu Gly Thr Ser  
 130 135 140  
 Asp Ala Tyr Phe Pro Pro Glu Val Pro Ala Leu Ala Asn Phe Val Val  
 145 150 155 160  
 Gln Lys Ala Thr Thr Glu Val Leu Glu Asp Lys Lys Ala Asn Tyr His  
 165 170 175  
 Ile Gly Ile Thr His Thr Thr Asn Ile Arg Phe Trp Glu Phe Asn Lys  
 180 185 190  
 Lys Phe Arg Lys Lys Leu Tyr Glu Thr Lys Ala Gln Ser Ala Glu Met  
 195 200 205  
 Glu Cys Ala Thr Leu Phe Ala Ala Gly Tyr Arg Arg Asn Leu Pro Ile  
 210 215 220  
 Gly Ala Leu Leu Leu Ile Ser Asp Leu Pro Leu Arg Lys Glu Gly Ile  
 225 230 235 240  
 Lys Thr Lys Ser Ser Gly Asn Phe Ile Phe Asn Thr Tyr Thr Glu Asp  
 245 250 255  
 His Ile Leu Thr Gly Gln Glu Val Ile Glu Asn Leu Glu Lys Val Met



260 265 270  
 Leu Lys Arg Ala Ala Ser Asp His Lys Lys Asp Gln Gln Tyr Arg Gly  
 275 280 285  
 Leu Pro His Met Glu Val Gly Glu Ala Asp Asp Thr Met Ala Ser Gly  
 290 295 300  
 Ser Glu Thr Ser Asp Ser Asp Tyr  
 305 310

&lt;210&gt;968

&lt;211&gt;190

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;968

Met Val Arg Val Ser Thr Ser Glu Phe Arg Val Gly Leu Arg Ile Glu  
 1 5 10 15  
 Ile Asp Gly Gln Pro Tyr Leu Ile Leu Gln Asn Asp Phe Val Lys Pro  
 20 25 30  
 Gly Lys Gly Gln Ala Phe Asn Arg Ile Lys Val Lys Asn Phe Leu Thr  
 35 40 45  
 Gly Arg Val Ile Glu Arg Thr Tyr Lys Ser Gly Glu Ser Val Glu Thr  
 50 55 60  
 Ala Asp Ile Val Glu Arg Ser Met Arg Leu Leu Tyr Thr Asp Gln Glu  
 65 70 75 80  
 Gly Ala Thr Phe Met Asp Asp Glu Thr Phe Glu Gln Glu Val Val Phe  
 85 90 95  
 Trp Glu Lys Leu Glu Asn Ile Arg Gln Trp Leu Leu Glu Asp Thr Ile  
 100 105 110  
 Tyr Thr Leu Val Leu Tyr Asn Gly Asp Val Val Ala Val Glu Pro Pro  
 115 120 125  
 Ile Phe Met Glu Leu Ser Ile Ala Glu Thr Ala Pro Gly Val Arg Gly  
 130 135 140  
 Asp Thr Ala Ser Gly Arg Val Leu Lys Pro Ala Val Thr Asn Thr Gly  
 145 150 155 160  
 Ala Lys Ile Met Val Pro Ile Phe Ile Asp Glu Gly Glu Leu Val Lys  
 165 170 175  
 Val Asp Thr Arg Thr Gly Ser Tyr Glu Ser Arg Val Ser Lys  
 180 185 190

&lt;210&gt;969

&lt;211&gt;83

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;969

Glu Lys Tyr Phe Phe Phe Thr Val Arg Asn Met Glu Ala Lys Lys Ile  
 1 5 10 15  
 Lys Glu Leu Ser Lys Glu Ala Gln Leu Lys Lys Leu Arg Glu Lys  
 20 25 30  
 Ser Arg Val Leu Asp Glu Lys Asn Lys Arg Lys Ala Trp Val Ala Lys  
 35 40 45  
 Leu Val Ala Met Pro Glu Ser Ile Arg Glu Ile Glu Lys Glu Glu Arg  
 50 55 60  
 Val Glu Thr Pro Gln Leu Phe Gln Ala Ile Ala Glu Lys Ile Leu Glu  
 65 70 75 80  
 Glu Gly Val

&lt;210&gt;970

&lt;211&gt;314

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;970

Asn Phe Ser Leu Asp Ser Asn Thr Val Asp Gln Lys Asn Lys Ser Asn  
 1 5 10 15  
 Pro Arg Pro Met Gln Glu Lys Pro Arg His Val His Arg Ile Ile His  
 20 25 30  
 Ile Ser Asp Val His Phe His Val Leu Pro Val Asn Pro Val His Cys  
 35 40 45

Phe Asn Lys Arg Leu Lys Gly Leu Leu Arg Lys Val Phe Gly Leu Val  
 50 55 60  
 His Phe Gln Ala Thr Thr Ile Gly Gln Arg Phe Pro Lys Val Val Arg  
 65 70 75 80  
 Ser Leu Gly Ala Asp Ser Val Cys Ile Thr Gly Asp Phe Ser Leu Thr  
 85 90 95  
 Ala Met Asp Gly Glu Phe Leu Leu Ala Lys His Phe Val Glu Thr Leu  
 100 105 110  
 Ala Lys His Ser Ser Val Tyr Leu Leu Pro Gly Asn His Asp Val Tyr  
 115 120 125  
 Thr Leu Lys Ser Leu Ala Gln Gln Thr Phe Tyr Thr His Phe Pro Asn  
 130 135 140  
 Asp Gln Leu Gln Gln Asn Lys Val Ser Phe His Lys Ile Thr Asp His  
 145 150 155 160  
 Trp Trp Leu Ile Leu Leu Asp Cys Ser Cys Leu Asn Gly Trp Phe Ser  
 165 170 175  
 Ala Asn Gly Val Val His Leu Ala Gln Ile Ser Ala Ile Glu Thr Phe  
 180 185 190  
 Leu Leu Ser Leu Ser Pro Glu Glu Asn Val Ile Ile Ala Asn His Tyr  
 195 200 205  
 Pro Leu Leu Ser Ser Gln Asn Pro Ser His Asp Leu Ile Asn Asn Thr  
 210 215 220  
 His Leu Gln Asn Val Leu Lys Lys Tyr Pro Lys Val Arg Leu Tyr Leu  
 225 230 235 240  
 His Gly His Glu His Gln Ala Ala Val Tyr Asn Cys Ala Asp Thr Ser  
 245 250 255  
 Pro Ser Tyr Ile Leu Asn Ser Gly Ser Ile Ser Leu Pro Thr Asn Ser  
 260 265 270  
 Arg Phe His Val Ile Asp Leu Tyr Pro Glu Lys Tyr Gln Val His Thr  
 275 280 285  
 Met Ile Leu Lys Asn Leu Leu Asp Phe Asp Ala Pro Leu Glu Ile Ala  
 290 295 300  
 Asn Glu Ala Thr Trp Asp Cys Gln Lys Leu  
 305 310

&lt;210&gt;971

&lt;211&gt;519

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;971

Met Ser Glu Gln Glu Lys Leu Ser Asn Tyr Asn Ala Asp Lys Lys Leu  
 1 5 10 15  
 Phe Ser Gly Ile Asp Lys Leu Phe Gln Ile Val Lys Gly Ser Tyr Gly  
 20 25 30  
 Pro Lys Gln Ser Leu Ser Pro Thr Ser Phe Phe Lys Glu Arg Gly Phe  
 35 40 45  
 Tyr Ala Ile Ser Gln Thr Glu Leu Ser Asn Ser Tyr Glu Asn Leu Gly  
 50 55 60  
 Val Asp Phe Ala Lys Ala Met Val Asn Lys Ile His Lys Glu His Ser  
 65 70 75 80  
 Asp Gly Ala Thr Thr Gly Leu Ile Leu Leu His Ala Ile Leu Gln Glu  
 85 90 95  
 Ser Tyr Ala Ala Leu Glu Lys Gly Ile Ser Thr His Lys Leu Ile Ala  
 100 105 110  
 Ser Leu Lys Leu Gln Gly Glu Lys Leu Gln Glu Ala Leu Gln Gln Gln  
 115 120 125  
 Ser Trp Pro Ile Lys Asp Ala Leu Lys Val Arg Asn Ile Ile Phe Ser  
 130 135 140  
 Ser Leu His Met Pro Thr Ile Ala Asp His Phe Tyr Asn Ala Phe Ser  
 145 150 155 160  
 Val Val Gly Pro Glu Gly Leu Ile Ser Ile Thr Lys Glu Arg Glu Asn  
 165 170 175  
 Asp Lys Thr Ser Met Asp Val Phe Gln Gly Phe Lys Ile Pro Ala Gly  
 180 185 190  
 Tyr Ala Ser Thr Tyr Phe Val Ser Asp Thr Ala Ser Arg Leu Thr Arg

195 200 205  
 Ile Ala His Pro Leu Ile Leu Ile Thr Asp Arg Lys Ile Ser Met Ile  
 210 215 220  
 His Ser Leu Leu Pro Leu Leu Gln Glu Ile Ser Glu Gln Asn Gln His  
 225 230 235 240  
 Leu Ile Ile Phe Cys Glu Asp Ile Asp Pro Asp Val Leu Ala Thr Leu  
 245 250 255  
 Val Val Asn Lys Leu Gln Gly Leu Leu Gln Val Thr Val Val Thr Ile  
 260 265 270  
 Pro Gln Leu Ser Thr Thr Asn Gln Glu Leu Ala Glu Asp Ile Ala Leu  
 275 280 285  
 Phe Thr Gly Thr His Ile Cys Pro Cys Gln Glu Ala Ser His Val Leu  
 290 295 300  
 Ala Pro Glu Met Val Thr Leu Gly Ser Cys Leu Ser Ile Glu Ile Ser  
 305 310 315 320  
 Glu Ser Gln Thr Thr Leu Ile Gly Gly Leu His Ile Pro Glu Val Leu  
 325 330 335  
 Thr Leu Lys Thr Arg Gln Leu Ala Glu Glu Ile Arg Thr Thr Ser Cys  
 340 345 350  
 Leu Glu Thr Lys Lys Arg Leu Ile Lys Ser Thr Asn Arg Leu Gln Ser  
 355 360 365  
 Ser Val Ala Ile Leu Pro Thr Asp Glu Asp Asn Glu Pro Leu Tyr Thr  
 370 375 380  
 Leu Ala Leu Lys Ile Met Glu Ser Ala Leu Ser Arg Gly Tyr Val Pro  
 385 390 395 400  
 Gly Gly Gly Val Ala Leu Phe Tyr Ala Ser Leu Thr Leu Gly Thr Pro  
 405 410 415  
 Lys Asp Asp Ala Asp Glu Asn Ser Ile Ala Ile Ser Leu Leu Gln Lys  
 420 425 430  
 Ala Cys Cys Ala Pro Leu Lys Leu Leu Ala Thr Asn Ala Asp Leu Asp  
 435 440 445  
 Gly Asp Ala Val Ile Ala Lys Leu Ser Ser Leu Gly Thr Thr Ser Leu  
 450 455 460  
 Gly Ile Ser Val Phe Ser Arg Glu Ile Glu Asp Leu Ile Ala Gly Gly  
 465 470 475 480  
 Ile Leu Asp Ser Leu Ala Thr Thr Ser Thr Ile Leu Ala Gln Ala Leu  
 485 490 495  
 Asp Thr Ala Ile Leu Val Leu Ser Ser Lys Ile Leu Ile Leu Glu Asn  
 500 505 510  
 Gln Tyr Glu Ile Ser Thr Leu  
 515

&lt;210&gt;972

&lt;211&gt;447

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;972

Met Arg Ala Met Leu Leu Glu Asp Trp Val Ser Leu Met Leu Ser Asp  
 1 5 10 15  
 Val Ser Cys Pro Lys Cys Asp Lys Lys Ile Thr Gly Phe Ala Ile Asp  
 20 25 30  
 Ser Gln Lys Val Gln Pro Gly Asp Leu Phe Phe Ala Leu Pro Gly Asn  
 35 40 45  
 Ala Thr Asp Gly His Gln Phe Leu Lys His Ala Ala Thr Ala Gly Ala  
 50 55 60  
 Val Ala Ala Val Val Ser His Asp Tyr Gln Gly Asp Ser Phe Gly Leu  
 65 70 75 80  
 Glu Leu Ile Arg Val Asp Asp Thr Lys Ser Ala Leu Gln Glu Ala Gly  
 85 90 95  
 Ser Asn Gln Cys Asn Leu Phe Gln Gly Thr Leu Val Gly Ile Thr Gly  
 100 105 110  
 Ser Val Gly Lys Thr Thr Thr Lys Glu Phe Ser Lys Thr Ile Leu Ser  
 115 120 125  
 Ser Ile Tyr Lys Thr His Ala Ser Pro Lys Ser Tyr Asn Ser Gln Leu  
 130 135 140

Thr Val Pro Leu Ser Leu Leu Met Ala Glu Gly Asp Glu Asp Val Met  
 145 150 155 160  
 Ile Leu Glu Met Gly Val Ser Glu Pro Gly Asn Met Gln Asp Leu Leu  
 165 170 175  
 Arg Ile Val Gln Pro Glu Ile Ala Val Ile Thr His Ile Asn Asp Gln  
 180 185 190  
 His Ala Met His Phe Pro Gln Gly Ile Gln Glu Ile Leu Lys Glu Lys  
 195 200 205  
 Ser Tyr Ile Leu Gln Lys Ser Lys Leu Gln Leu Leu Pro Lys Asp Ser  
 210 215 220  
 Pro Tyr Tyr Leu Asp Leu Arg Ser Cys Ser Pro Thr Ala Glu Lys Phe  
 225 230 235 240  
 Ser Phe Ser Phe Asn Asp Pro Leu Ala Asp Phe Cys Tyr Lys Ala Ile  
 245 250 255  
 Ser Gly Asp Ser Val Val Ile Gln Thr Pro Glu Glu Asn Tyr Cys Leu  
 260 265 270  
 Pro Ile Ala Phe Ser Tyr Lys Pro Ala Tyr Thr Asn Leu Leu Ile Ala  
 275 280 285  
 Val Ala Leu Ser Trp Ile Leu Glu Val Pro Glu Glu Gly Val Ile Arg  
 290 295 300  
 Ser Leu Pro Glu Leu Lys Leu Pro Pro Met Arg Phe Glu His Ser Met  
 305 310 315 320  
 Arg Asn Gly Met Gln Val Ile Asn Asp Ala Tyr Asn Ala Cys Pro Glu  
 325 330 335  
 Ala Met Ile Ala Ala Leu Asp Ala Leu Pro Leu Pro Ser Asp Gly Gly  
 340 345 350  
 Lys Ile Ile Leu Ile Leu Gly His Met Ala Glu Leu Gly Arg Tyr Ser  
 355 360 365  
 Glu Glu Gly His Ala Leu Val Ala Glu Lys Ala Ala Ser Arg Gly Asp  
 370 375 380  
 Met Ile Phe Phe Ile Gly Glu Lys Trp Ile Pro Val Gln Ser Val Leu  
 385 390 395 400  
 Lys Ser Tyr Ser Cys Glu Val Ser Phe Phe Ser Ser Ala Gln Asp Val  
 405 410 415  
 Lys Asp Ile Leu Lys Gln Val Ala Arg Tyr Gly Asp Val Ile Leu Leu  
 420 425 430  
 Lys Gly Ser Arg Ala Leu Ala Leu Glu Ser Leu Leu Ala Cys Phe  
 435 440 445

&lt;210&gt;973

&lt;211&gt;349

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;973

Met Ile Pro Leu Ile Pro Met Phe Leu Lys Gln Ser Leu Phe Phe Ser  
 1 5 10 15  
 Leu Ala Leu Thr Gly Met Thr Thr Leu Val Leu Thr Val Ser Leu Gly  
 20 25 30  
 Val Pro Val Met Lys Trp Leu Lys Arg Lys Asn Tyr Arg Asp Tyr Ile  
 35 40 45  
 His Lys Glu Tyr Cys Glu Lys Leu Glu Met Leu His Lys Asp Lys Ala  
 50 55 60  
 Glu Val Pro Thr Gly Gly Val Leu Leu Phe Ile Ser Leu Ile Ala  
 65 70 75 80  
 Ser Leu Leu Val Trp Leu Pro Trp Gly Lys Phe Ser Thr Trp Phe Phe  
 85 90 95  
 Ile Ile Leu Leu Thr Cys Tyr Ala Gly Leu Gly Trp Tyr Asp Asp Arg  
 100 105 110  
 Ile Lys Ile Lys Arg Lys Gln Gly His Gly Leu Lys Ala Lys His Lys  
 115 120 125  
 Phe Met Val Gln Ile Ala Ile Ala Ala Phe Thr Leu Ile Ala Leu Pro  
 130 135 140  
 Tyr Ile Tyr Gly Ser Thr Glu Pro Leu Trp Thr Leu Lys Ile Pro Phe  
 145 150 155 160  
 Met Glu Gly Met Leu Ser Leu Pro Phe Trp Leu Gly Lys Val Phe Cys

165 170 175  
 Leu Gly Leu Ala Leu Val Ala Ile Ile Gly Thr Ser Asn Ala Val Asn  
 180 185 190  
 Leu Thr Asp Gly Leu Asp Gly Leu Ala Ala Gly Thr Met Ser Phe Ala  
 195 200 205  
 Ala Leu Gly Phe Ile Phe Val Ala Leu Arg Ser Ser Thr Ile Pro Ile  
 210 215 220  
 Ala Gln Asp Val Ala Tyr Val Leu Ala Ala Leu Val Gly Ala Cys Ile  
 225 230 235 240  
 Gly Phe Leu Trp Tyr Asn Gly Phe Pro Ala Gln Leu Phe Met Gly Asp  
 245 250 255  
 Thr Gly Ser Leu Leu Leu Gly Gly Leu Leu Gly Ser Cys Ala Val Met  
 260 265 270  
 Leu Arg Ala Glu Cys Ile Leu Val Val Ile Gly Gly Val Phe Val Ala  
 275 280 285  
 Glu Ala Gly Ser Val Ile Leu Gln Val Leu Ser Cys Arg Leu Arg Lys  
 290 295 300  
 Lys Arg Leu Phe Leu Cys Ser Pro Leu His His His Tyr Glu Tyr Gln  
 305 310 315 320  
 Gly Leu Pro Glu Thr Lys Ile Val Met Arg Phe Trp Ile Phe Ser Phe  
 325 330 335  
 Val Cys Ala Gly Leu Gly Ile Ala Ala Val Leu Trp Arg  
 340 345

&lt;210&gt;974

&lt;211&gt;419

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;974

Met Arg Arg Ser Arg Tyr Ser Gly Cys Leu Met Glu Ile Asp Met Cys  
 1 5 10 15  
 Gln Arg Ile Leu Ile Leu Gly Thr Gly Ile Thr Gly Lys Ser Val Ala  
 20 25 30  
 Arg Phe Leu Tyr Gln Gln Gly His Tyr Leu Ile Gly Ala Asp Asn Ser  
 35 40 45  
 Leu Glu Ser Leu Ile Ser Val Asp His Leu His Asp Arg Leu Leu Met  
 50 55 60  
 Gly Ala Ser Glu Phe Pro Glu Asn Ile Asp Leu Val Ile Arg Ser Pro  
 65 70 75 80  
 Gly Ile Lys Pro Tyr His Pro Trp Val Glu Gln Ala Val Ser Leu Lys  
 85 90 95  
 Ile Pro Val Val Thr Asp Ile Gln Val Ala Leu Lys Thr Pro Glu Phe  
 100 105 110  
 Gln Arg Tyr Pro Ser Phe Gly Ile Thr Gly Ser Asn Gly Lys Thr Thr  
 115 120 125  
 Thr Thr Leu Phe Leu Thr His Leu Leu Asn Thr Leu Gly Ile Pro Ala  
 130 135 140  
 Ile Ala Met Gly Asn Ile Gly Leu Pro Ile Leu Asp His Met Gly Gln  
 145 150 155 160  
 Pro Gly Val Arg Val Val Glu Ile Ser Ser Phe Gln Leu Ala Thr Gln  
 165 170 175  
 Glu Glu His Ile Pro Ala Leu Ser Gly Ser Val Phe Leu Asn Phe Ser  
 180 185 190  
 Arg Asn His Leu Asp Tyr His Arg Asn Leu Asp Ala Tyr Phe Asp Ala  
 195 200 205  
 Lys Leu Arg Ile Gln Lys Cys Leu Arg Gln Asp Lys Thr Phe Trp Val  
 210 215 220  
 Trp Glu Glu Cys Ser Leu Gly Asn Ser Tyr Gln Ile Tyr Ser Glu Glu  
 225 230 235 240  
 Ile Glu Glu Ile Leu Asp Lys Gly Asp Ala Leu Lys Pro Ile Tyr Leu  
 245 250 255  
 His Asp Arg Asp Asn Tyr Cys Ala Ala Tyr Ala Leu Ala Asn Glu Val  
 260 265 270  
 Gly Trp Val Ser Pro Glu Gly Phe Leu Lys Ala Ile Arg Thr Phe Glu  
 275 280 285

Lys Pro Ala His Arg Leu Glu Tyr Leu Gly Lys Lys Asp Gly Val His  
 290 295 300  
 Tyr Ile Asn Asp Ser Lys Ala Thr Thr Val Thr Ala Val Glu Lys Ala  
 305 310 315 320  
 Leu Met Ala Val Gly Lys Asp Val Ile Val Ile Leu Gly Gly Lys Asp  
 325 330 335  
 Lys Gly Gly Asp Phe Pro Ala Leu Ala Ser Val Leu Ser Gln Thr Thr  
 340 345 350  
 Lys His Val Ile Ala Met Gly Glu Cys Arg Gln Thr Ile Ala Asp Ala  
 355 360 365  
 Leu Ser Glu Lys Ile Pro Leu Thr Leu Ser Lys Asp Leu Gln Glu Ala  
 370 375 380  
 Val Ser Ile Ala Gln Thr Ile Ala Gln Glu Gly Asp Thr Val Leu Leu  
 385 390 395 400  
 Ser Pro Gly Cys Ala Xaa Leu Ile Ser Phe Lys Val Leu Lys Asn Ala  
 405 410 415  
 Xaa Leu Leu

&lt;210&gt;975

&lt;211&gt;252

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;975

Arg Thr Arg Xaa Tyr Phe Lys Leu Leu Ile Arg Arg Asn Ala Gly Ser  
 1 5 10 15  
 Glu Val Asn Met Asn Arg Arg Asp Met Val Ile Thr Ala Val Val Val  
 20 25 30  
 Asn Ala Ile Leu Leu Val Ala Leu Phe Val Thr Ser Lys Arg Ile Gly  
 35 40 45  
 Val Lys Asp Tyr Asp Glu Gly Phe Arg Asn Phe Ala Ser Ser Lys Val  
 50 55 60  
 Thr Gln Ala Val Val Ser Glu Glu Lys Val Ile Glu Lys Pro Val Val  
 65 70 75 80  
 Ala Glu Val Pro Ser Arg Pro Ile Ala Lys Glu Thr Leu Ala Ala Gln  
 85 90 95  
 Phe Ile Glu Ser Lys Pro Val Ile Val Thr Thr Pro Pro Val Pro Val  
 100 105 110  
 Val Ser Glu Thr Pro Glu Val Pro Thr Val Ala Val Pro Pro Gln Pro  
 115 120 125  
 Val Arg Glu Thr Val Lys Glu Glu Gln Ala Pro Tyr Ala Thr Val Val  
 130 135 140  
 Val Lys Lys Gly Asp Phe Leu Glu Arg Ile Ala Arg Ala Asn His Thr  
 145 150 155 160  
 Thr Val Ala Lys Leu Met Gln Ile Asn Asp Leu Thr Thr Thr Gln Leu  
 165 170 175  
 Lys Ile Gly Gln Val Ile Lys Val Pro Thr Ser Gln Asp Val Ser Asn  
 180 185 190  
 Glu Lys Thr Pro Gln Thr Gln Thr Ala Asn Pro Glu Asn Tyr Tyr Ile  
 195 200 205  
 Val Gln Glu Gly Asp Ser Pro Trp Thr Ile Ala Leu Arg Asn His Ile  
 210 215 220  
 Arg Leu Asp Asp Leu Leu Lys Met Asn Asp Leu Asp Glu Tyr Lys Ala  
 225 230 235 240  
 Arg Arg Leu Lys Pro Gly Asp Gln Leu Arg Ile Arg  
 245 250

&lt;210&gt;976

&lt;211&gt;385

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;976

Met Lys Trp Phe Val Ile Ser Cys Leu Leu Gly Ile Phe Ser Leu Gly  
 1 5 10 15  
 Leu Ile Met Val Phe Glu Thr Ser Ser Ala Glu Val Leu Asp Arg Ser  
 20 25 30

Leu Glu Cys Ser Thr His Lys Ala Leu Ile Arg Gln Val Thr Tyr Leu  
           35                  40                  45  
 Ile Leu Gly Leu Gly Val Ala Ser Leu Leu Tyr Met Met Glu Trp Arg  
           50                  55                  60  
 Asp Phe Leu Lys Ile Ser Pro Val Leu Leu Ser Gly Ala Ala Leu Ala  
           65                  70                  75                  80  
 Leu Ile Cys Val Phe Ile Pro Gly Leu Gly Ile Cys Arg Asn Gly Ala  
                   85                  90                  95  
 Arg Arg Trp Leu Gly Phe Gly Gln Leu Thr Ile Gln Pro Ser Glu Phe  
           100                  105                  110  
 Val Lys Tyr Leu Val Pro Ile Val Ala Leu Tyr Phe Leu Thr Phe Ser  
           115                  120                  125  
 Ser Leu Tyr Gln Lys Gln Leu Lys Met Phe Leu Lys Leu Thr Ala Ile  
           130                  135                  140  
 Leu Phe Ile Pro Ile Leu Leu Ile Ala Ile Glu Pro Asp Asn Gly Ser  
           145                  150                  155                  160  
 Ala Ala Val Ile Ser Ala Ser Leu Ile Pro Val Phe Ile Met Thr Ser  
                   165                  170                  175  
 Val Arg Leu Arg Tyr Trp Leu Leu Pro Leu Leu Cys Val Leu Ile Ala  
           180                  185                  190  
 Gly Gly Ala Leu Ala Tyr Arg Met Pro Tyr Val Arg Tyr Arg Leu Asn  
           195                  200                  205  
 Val Tyr Leu His Pro Glu Leu Asp Ile Lys Gly Arg Gly His Gln Pro  
           210                  215                  220  
 Tyr Gln Ala Lys Ile Ala Ala Gly Ser Gly Lys Leu Leu Gly Lys Gly  
           225                  230                  235                  240  
 Pro Gly Ala Ser Leu Gln Lys Leu Thr Tyr Leu Pro Glu Ala Gln Asn  
                   245                  250                  255  
 Asp Tyr Ile Ala Ala Ile Tyr Ala Glu Glu Phe Gly Phe Leu Gly Met  
           260                  265                  270  
 Leu Val Leu Ile Leu Leu Tyr Met Cys Phe Val Tyr Gly Gly Tyr Ala  
           275                  280                  285  
 Ile Ala Ile Lys Ala Ser Ser Leu Glu Gly Ala Ala Leu Ala Met Val  
           290                  295                  300  
 Ile Thr Leu Ile Ile Ser Met Gln Ala Phe Met Asn Leu Gly Val Val  
           305                  310                  315                  320  
 Ser Gly Leu Leu Pro Ser Lys Gly Val Asn Leu Pro Phe Phe Ser Gln  
                   325                  330                  335  
 Gly Gly Ser Ser Leu Ile Ala Asn Met Cys Gly Val Thr Leu Leu Leu  
           340                  345                  350  
 Lys Val Tyr Asp Glu Glu Asn Ser Lys Ser Ser Leu Gly Cys Arg Arg  
           355                  360                  365  
 Phe Arg Arg Pro His Cys Pro Ser Ser Leu Gly Lys Gly Ser Phe Phe  
           370                  375                  380

Ser

385

&lt;210&gt;977

&lt;211&gt;357

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;977

Met Met Lys Lys Ile Arg Lys Val Ala Leu Ala Val Gly Gly Ser Gly  
           1                  5                  10                  15  
 Gly His Ile Val Pro Ala Leu Ser Val Lys Glu Ala Phe Ser Arg Glu  
                   20                  25                  30  
 Gly Ile Asp Val Leu Leu Leu Gly Lys Gly Leu Lys Asn His Pro Ser  
           35                  40                  45  
 Leu Gln Gln Gly Ile Ser Tyr Arg Glu Ile Pro Ser Gly Leu Pro Thr  
           50                  55                  60  
 Val Leu Asn Pro Ile Lys Ile Met Ser Arg Thr Leu Ser Leu Cys Ser  
           65                  70                  75                  80  
 Gly Tyr Leu Lys Ala Arg Lys Glu Leu Lys Ile Phe Asp Pro Asp Leu  
                   85                  90                  95  
 Val Ile Gly Phe Gly Ser Tyr His Ser Leu Pro Val Leu Leu Ala Gly

100 105 110  
 Leu Ser His Lys Ile Pro Leu Phe Leu His Glu Gln Asn Leu Val Pro  
 115 120 125  
 Gly Lys Val Asn Gln Leu Phe Ser Arg Tyr Ala Arg Gly Ile Gly Val  
 130 135 140  
 Asn Phe Ser Pro Val Thr Lys His Phe Arg Cys Pro Ala Glu Glu Val  
 145 150 155 160  
 Phe Leu Pro Lys Arg Ser Phe Ser Leu Gly Ser Pro Met Met Lys Arg  
 165 170 175  
 Cys Thr Asn His Thr Pro Thr Ile Cys Val Val Gly Gly Ser Gln Gly  
 180 185 190  
 Ala Gln Ile Leu Asn Thr Cys Val Pro Gln Ala Leu Val Lys Leu Val  
 195 200 205  
 Asn Lys Tyr Pro Asn Met Tyr Val His His Ile Val Gly Pro Lys Ser  
 210 215 220  
 Asp Val Met Lys Val Gln His Val Tyr Asn Arg Gly Glu Val Leu Cys  
 225 230 235 240  
 Cys Val Lys Pro Phe Glu Glu Gln Leu Leu Asp Val Leu Leu Ala Ala  
 245 250 255  
 Asp Leu Val Ile Ser Arg Ala Gly Ala Thr Ile Leu Glu Glu Ile Leu  
 260 265 270  
 Trp Ala Lys Val Pro Gly Ile Leu Ile Pro Tyr Pro Gly Ala Tyr Gly  
 275 280 285  
 His Gln Glu Val Asn Ala Lys Phe Phe Val Asp Val Leu Glu Gly Gly  
 290 295 300  
 Thr Met Ile Leu Glu Lys Glu Leu Thr Glu Lys Leu Leu Val Glu Lys  
 305 310 315 320  
 Val Thr Phe Ala Leu Asp Ser His Asn Arg Glu Lys Gln Arg Asn Ser  
 325 330 335  
 Leu Ala Ala Tyr Ser Gln Gln Arg Ser Thr Lys Thr Phe His Ala Phe  
 340 345 350  
 Ile Cys Glu Cys Leu  
 355

&lt;210&gt;978

&lt;211&gt;812

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;978

Val His Tyr Met Lys Gly Thr Pro Gln Tyr His Phe Ile Gly Ile Gly  
 1 5 10 15  
 Gly Ile Gly Met Ser Ala Leu Ala His Ile Leu Leu Asp Arg Gly Tyr  
 20 25 30  
 Glu Val Ser Gly Ser Asp Leu Tyr Glu Ser Tyr Thr Ile Glu Ser Leu  
 35 40 45  
 Lys Ala Lys Gly Ala Arg Cys Phe Ser Gly His Asp Ser Ser His Val  
 50 55 60  
 Pro His Asp Ala Val Val Val Tyr Ser Ser Ser Ile Ala Pro Asp Asn  
 65 70 75 80  
 Val Glu Tyr Leu Thr Ala Ile Gln Arg Ser Ser Arg Leu Leu His Arg  
 85 90 95  
 Ala Glu Leu Leu Ser Gln Leu Met Glu Gly Tyr Glu Ser Ile Leu Val  
 100 105 110  
 Ser Gly Ser His Gly Lys Thr Gly Thr Ser Ser Leu Ile Arg Ala Ile  
 115 120 125  
 Phe Gln Glu Ala Gln Lys Asp Pro Ser Tyr Ala Ile Gly Gly Leu Ala  
 130 135 140  
 Ala Asn Cys Leu Asn Gly Tyr Ser Gly Ser Ser Lys Ile Phe Val Ala  
 145 150 155 160  
 Glu Ala Asp Glu Ser Asp Gly Ser Leu Lys His Tyr Thr Pro Arg Ala  
 165 170 175  
 Val Val Ile Thr Asn Ile Asp Asn Glu His Leu Asn Asn Tyr Ala Gly  
 180 185 190  
 Asn Leu Asp Asn Leu Val Gln Val Ile Gln Asp Phe Ser Arg Lys Val  
 195 200 205



Thr Asp Leu Asn Lys Val Phe Tyr Asn Gly Asp Cys Pro Ile Leu Lys  
 210 215 220  
 Gly Asn Val Gln Gly Ile Ser Tyr Gly Tyr Ser Pro Glu Cys Gln Leu  
 225 230 235 240  
 His Ile Val Ser Tyr Asn Gln Lys Ala Trp Gln Ser His Phe Ser Phe  
 245 250 255  
 Thr Phe Leu Gly Gln Glu Tyr Gln Asp Ile Glu Leu Asn Leu Pro Gly  
 260 265 270  
 Gln His Asn Ala Ala Asn Ala Ala Ala Ala Cys Gly Val Ala Leu Thr  
 275 280 285  
 Phe Gly Ile Asp Ile Asn Ile Ile Arg Lys Ala Leu Lys Lys Phe Ser  
 290 295 300  
 Gly Val His Arg Arg Leu Glu Arg Lys Asn Ile Ser Glu Ser Phe Leu  
 305 310 315 320  
 Phe Leu Glu Asp Tyr Ala His His Pro Val Glu Val Ala His Thr Leu  
 325 330 335  
 Arg Ser Val Arg Asp Ala Val Gly Leu Arg Arg Val Ile Ala Ile Phe  
 340 345 350  
 Gln Pro His Arg Phe Ser Arg Leu Glu Glu Cys Leu Gln Thr Phe Pro  
 355 360 365  
 Lys Ala Phe Gln Glu Ala Asp Glu Val Ile Leu Thr Asp Val Tyr Ser  
 370 375 380  
 Ala Gly Glu Ser Pro Arg Glu Ser Ile Ile Leu Ser Asp Leu Ala Glu  
 385 390 395 400  
 Gln Ile Arg Lys Ser Ser Tyr Val His Cys Cys Tyr Val Pro His Gly  
 405 410 415  
 Asp Ile Val Asp Tyr Leu Arg Asn Tyr Ile Arg Ile His Asp Val Cys  
 420 425 430  
 Val Ser Leu Gly Ala Gly Asn Ile Tyr Thr Ile Gly Glu Ala Leu Lys  
 435 440 445  
 Asp Phe Asn Pro Lys Lys Leu Ser Ile Gly Leu Val Cys Gly Gly Lys  
 450 455 460  
 Ser Cys Glu His Asp Ile Ser Leu Leu Ser Ala Gln His Val Ser Lys  
 465 470 475 480  
 Tyr Ile Ser Pro Glu Phe Tyr Asp Val Ser Tyr Phe Ile Ile Asn Arg  
 485 490 495  
 Gln Gly Leu Trp Arg Thr Gly Lys Asp Phe Pro His Leu Ile Glu Glu  
 500 505 510  
 Thr Gln Gly Asp Ser Pro Leu Ser Ser Glu Ile Ala Ser Ala Leu Ala  
 515 520 525  
 Lys Val Asp Cys Leu Phe Pro Val Leu His Gly Pro Phe Gly Glu Asp  
 530 535 540  
 Gly Thr Ile Gln Gly Phe Phe Glu Ile Leu Gly Lys Pro Tyr Ala Gly  
 545 550 555 560  
 Pro Ser Leu Ser Leu Ala Ala Thr Ala Met Asp Lys Leu Leu Thr Lys  
 565 570 575  
 Arg Ile Ala Ser Ala Val Gly Val Pro Val Val Pro Tyr Gln Pro Leu  
 580 585 590  
 Asn Leu Cys Phe Trp Lys Arg Asn Pro Glu Leu Cys Ile Gln Asn Leu  
 595 600 605  
 Ile Glu Thr Phe Ser Phe Pro Met Ile Val Lys Thr Ala His Leu Gly  
 610 615 620  
 Ser Ser Ile Gly Ile Phe Leu Val Arg Asp Lys Glu Glu Leu Gln Glu  
 625 630 635 640  
 Lys Ile Ser Glu Ala Phe Leu Tyr Asp Thr Asp Val Phe Val Glu Glu  
 645 650 655  
 Ser Arg Leu Gly Ser Arg Glu Ile Glu Val Ser Cys Ile Gly His Ser  
 660 665 670  
 Ser Ser Trp Tyr Cys Met Ala Gly Pro Asn Glu Arg Cys Gly Ala Ser  
 675 680 685  
 Gly Phe Ile Asp Tyr Gln Glu Lys Tyr Gly Phe Asp Gly Ile Asp Cys  
 690 695 700  
 Ala Lys Ile Ser Phe Asp Leu Gln Leu Ser Gln Glu Ser Leu Asp Cys  
 705 710 715 720

Val Arg Glu Leu Ala Glu Arg Val Tyr Arg Ala Met Gln Gly Lys Gly  
 725 730 735  
 Ser Ala Arg Ile Asp Phe Phe Leu Asp Glu Glu Gly Asn Tyr Trp Leu  
 740 745 750  
 Ser Glu Val Asn Pro Ile Pro Gly Met Thr Ala Ala Ser Pro Phe Leu  
 755 760 765  
 Gln Ala Phe Val His Ala Gly Trp Thr Gln Glu Gln Ile Val Asp His  
 770 775 780  
 Phe Ile Ile Asp Ala Leu His Lys Phe Asp Lys Gln Gln Thr Ile Glu  
 785 790 795 800  
 Gln Ala Phe Thr Lys Glu Gln Asp Leu Val Lys Arg  
 805 810

&lt;210&gt;979

&lt;211&gt;192

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;979

Leu Val Asn Asp Ser Gln Leu Ser Arg Glu Ala Ser Ala Phe Arg Leu  
 1 5 10 15  
 Asp Ile Asp Phe Phe Ile Leu Asn Ile Tyr Pro Phe Phe Arg Asn Phe  
 20 25 30  
 Lys Asn Ile Glu Leu Cys Phe Phe Leu Ser Ile Ser Gln Phe Asn Leu  
 35 40 45  
 Asp Phe Met Glu Glu Phe Val Ala Tyr Ile Val Lys Asn Leu Val Thr  
 50 55 60  
 Asn Pro Glu Ala Val Glu Ile Arg Ser Ile Glu Asp Glu Asp Asn Glu  
 65 70 75 80  
 Ser Ile Lys Leu Glu Ile Arg Val Ala Ala Glu Asp Ile Gly Lys Ile  
 85 90 95  
 Ile Gly Arg Arg Gly Asn Thr Ile His Ala Leu Arg Thr Ile Leu Arg  
 100 105 110  
 Arg Val Cys Ser Arg Leu Lys Lys Lys Val Gln Ile Asp Leu Val Gln  
 115 120 125  
 Pro Glu Asn Gly Thr Asp Val Ile Ala Asp Gln Asp Tyr Ile Cys Asp  
 130 135 140  
 Asn Asp Ser Ser Asn Ser Thr Glu Asp Thr Phe Gly Glu Ser Asp Thr  
 145 150 155 160  
 Cys Cys Ser Gly His Cys His Tyr Asp Glu Asp Leu Asn Gln Glu Glu  
 165 170 175  
 Gln Glu Glu Gly Asn Met His His Ser Cys Glu Cys Ser Asn His His  
 180 185 190

&lt;210&gt;980

&lt;211&gt;120

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;980

Lys Phe Leu Ile Ile Lys Ser Ser Met Thr Ala Val Leu Ile Leu Thr  
 1 5 10 15  
 Ser Phe Pro Ser Glu Glu Ser Ala Arg Ser Leu Ala Arg His Leu Ile  
 20 25 30  
 Thr Glu Arg Leu Ala Ser Cys Val His Val Phe Pro Lys Gly Thr Ser  
 35 40 45  
 Thr Tyr Leu Trp Glu Gly Lys Leu Cys Glu Ser Glu Glu His His Ile  
 50 55 60  
 Gln Ile Lys Ser Ile Asp Ile Arg Phe Ser Glu Ile Cys Leu Ala Ile  
 65 70 75 80  
 Gln Glu Phe Ser Gly Tyr Glu Val Pro Glu Val Leu Leu Phe Pro Ile  
 85 90 95  
 Glu Asn Gly Asp Pro Arg Tyr Leu Asn Trp Leu Thr Ile Leu Ser Tyr  
 100 105 110  
 Pro Glu Lys Pro Pro Leu Ser Asp  
 115 120

&lt;210&gt;981

&lt;211&gt;213

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;981

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Ile Leu Ala Ile Leu Phe Met Ile Ile Ile Lys Asn Asn Glu Leu Met
 1           5           10           15
Ile Arg Arg Phe Lys Thr Leu Phe Pro Pro Gly Pro Gln Tyr Ser
          20           25           30
Leu Cys Tyr Ala Ser Ile Leu Ile Val Leu Ser Ser Leu Val Cys Val
          35           40           45
Pro Thr Phe Cys Trp Leu Phe Leu Pro Glu Leu Ser Leu Ser Lys Phe
          50           55           60
Asn Pro Ser Pro Ile Arg Asn Leu Phe Leu Val Ser Ser Thr Leu Ser
          65           70           75           80
Lys Val Pro Pro Thr Ala Ile Ala Glu His Leu Arg Leu Ser Ala Asp
          85           90           95
Ala Pro Thr Tyr Leu His Glu Phe Ser Ile Lys Glu Ala Glu Ser Ser
          100          105          110
Leu His Ala Leu Gly Ile Phe Ser Ser Leu Val Ile Glu Lys Ser Pro
          115          120          125
Asp Asn Lys Gly Ile Thr Ile Phe Tyr Thr Leu Gln Thr Pro Ile Ala
          130          135          140
Tyr Val Gly Asn Arg Ser Asn Thr Leu Cys Asn Leu Glu Gly Ser Cys
          145          150          155          160
Phe Leu Gly Gln Pro Tyr Phe Pro Ser Leu Asn Leu Pro Gln Ile Phe
          165          170          175
Phe Ser Gln Glu Asp Leu Lys Met Gln Lys Leu Pro Lys Glu Lys Met
          180          185          190
Leu Phe Thr Lys Ile Leu Leu Lys Glu Leu Ala Met Glu Ser Pro Lys
          195          200          205
Ile Ile Asp Leu Ser
          210

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&lt;210&gt;982

&lt;211&gt;107

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;982

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Leu Glu Arg Leu Leu Met Asn Leu Ser Ala Lys Glu Tyr Gly Asp Ile
 1           5           10           15
Ile Val Ile Tyr Leu Gln Gly Ser Leu Asp Ala Val Ser Val Pro Ser
          20           25           30
Val Gln Glu Tyr Leu Glu Gln Phe Ile Gln Lys Lys His Leu Lys Ile
          35           40           45
Ala Leu Asn Phe Thr Asp Val Ser Tyr Ile Ser Ser Ala Gly Ile Arg
          50           55           60
Leu Leu Leu Ser Asn Phe Lys Leu Val Gln Ser Leu Gly Gly Lys Met
          65           70           75           80
Cys Leu Cys Cys Val Lys Glu Ser Val Thr Glu Val Met Arg Ile Ala
          85           90           95
Arg Phe Arg Gln Met Ile Leu Leu Cys Gln Val
          100          105

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&lt;210&gt;983

&lt;211&gt;342

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;983

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Met Leu Pro Phe Glu Phe Glu Phe Asn Thr Thr Ser Ser Pro Glu Cys
 1           5           10           15
Asp Val Cys Leu Asp Pro Gln Lys Leu Phe Val Lys Leu Phe Lys Arg
          20           25           30
Thr Ile Val Leu Leu Ser Gly Pro Thr Gly Ser Gly Lys Thr Asp Val
          35           40           45
Ser Leu Ala Leu Ala Pro Met Ile Asp Gly Glu Ile Val Ser Val Asp
          50           55           60
Ser Met Gln Val Tyr Gln Gly Met Asp Ile Gly Thr Ala Lys Val Ser

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65 70 75 80  
 Leu Lys Ala Arg Gln Glu Ile Pro His His Leu Ile Asp Ile Arg His  
 85 90 95  
 Val Gln Glu Pro Phe Asn Val Val Asp Phe Tyr Tyr Glu Ala Ile Gln  
 100 105 110  
 Ala Cys Gln Asn Ile Leu Ser Arg Asn Lys Val Pro Ile Leu Val Gly  
 115 120 125  
 Gly Ser Gly Phe Tyr Phe His Ala Phe Leu Ser Gly Pro Pro Lys Gly  
 130 135 140  
 Pro Ala Ala Asp Pro Gln Ile Arg Glu Gln Leu Glu Ala Ile Ala Glu  
 145 150 155 160  
 Glu His Gly Val Ser Ala Leu Tyr Glu Asp Leu Leu Leu Lys Asp Pro  
 165 170 175  
 Glu Tyr Ala Gln Thr Ile Thr Lys Asn Asp Lys Asn Lys Ile Ile Arg  
 180 185 190  
 Gly Leu Glu Ile Ile Gln Leu Thr Gly Lys Lys Val Ser Asp His Glu  
 195 200 205  
 Trp Asp Ile Val Pro Lys Ala Ser Arg Glu Tyr Cys Cys Arg Ala Trp  
 210 215 220  
 Phe Leu Ser Pro Glu Thr Glu Phe Leu Lys Asn Asn Ile Gln Met Arg  
 225 230 235 240  
 Cys Glu Ala Met Leu Gln Glu Gly Leu Leu Glu Glu Val Arg Gly Leu  
 245 250 255  
 Leu Asn Gln Gly Ile Arg Glu Asn Pro Ser Ala Phe Lys Ala Ile Gly  
 260 265 270  
 Tyr Arg Glu Trp Ile Glu Phe Leu Asp Asn Gly Glu Lys Leu Glu Glu  
 275 280 285  
 Tyr Glu Glu Thr Lys Arg Lys Phe Val Ser Asn Ser Trp His Tyr Thr  
 290 295 300  
 Lys Lys Gln Lys Thr Trp Phe Lys Arg Tyr Ser Ile Phe Arg Glu Leu  
 305 310 315 320  
 Pro Thr Leu Gly Leu Ser Ser Asp Ala Ile Ala Gln Lys Ile Ala Lys  
 325 330 335  
 Asp Tyr Leu Leu Tyr Ser  
 340

&lt;210&gt;984

&lt;211&gt;365

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;984

Ser Leu Leu Leu Ala Ile Phe Asn Val Asn Tyr Phe Met Asn Leu Cys  
 1 5 10 15  
 Lys Arg Ile Ser Phe Glu Glu Gly Leu Glu Leu Phe Val Ser Ser Pro  
 20 25 30  
 Ile Glu Arg Leu Gln Glu Arg Ala Asp Ala Ile Arg Lys Glu Arg Tyr  
 35 40 45  
 Pro Ser Asn Glu Val Thr Tyr Val Leu Asp Ala Asn Pro Asn Tyr Thr  
 50 55 60  
 Asn Ile Cys Lys Ile Asp Cys Thr Phe Cys Ala Phe Tyr Arg Lys Pro  
 65 70 75 80  
 Lys Ser Pro Asp Ala Tyr Leu Leu Ser Phe Asp Glu Val Arg Ser Leu  
 85 90 95  
 Leu Gln Arg Tyr Val Ser Ser Gly Val Lys Thr Val Leu Leu Gln Gly  
 100 105 110  
 Gly Val His Pro Gly Leu Gly Ile Asp Tyr Leu Glu Glu Leu Val Arg  
 115 120 125  
 Ile Thr Val Gln Glu Phe Pro Ser Ile His Pro His Phe Phe Ser Ala  
 130 135 140  
 Val Glu Ile Glu His Ala Cys Arg Val Ser Gly Ile Ser Ile Glu Gln  
 145 150 155 160  
 Gly Leu Gln Arg Leu Trp Asp Ala Gly Gln Arg Thr Ile Pro Gly Gly  
 165 170 175  
 Gly Ala Glu Ile Leu Ser Glu Arg Val Arg Lys Ile Ile Ser Pro Lys  
 180 185 190

Lys Met Gln Pro Gly Gly Trp Ile Asn Leu His Lys Leu Ala His Leu  
 195 200 205  
 Met Gly Phe Arg Thr Thr Ala Thr Met Met Phe Gly His Val Glu Asn  
 210 215 220  
 Pro Glu Asp Ile Leu Ile His Leu Gln Thr Leu Arg Asp Ala Gln Asp  
 225 230 235 240  
 Ser Cys Pro Gly Phe Tyr Ser Phe Ile Pro Trp Ser Tyr Lys Pro Gly  
 245 250 255  
 Asn Thr Ala Leu Arg Arg Asn Val Pro Gln Gln Ala Ser Ile Glu Thr  
 260 265 270  
 Tyr Tyr Arg Ile Leu Ala Leu Gly Arg Ile Phe Leu Asp Asn Phe Asp  
 275 280 285  
 His Val Ala Ala Ser Trp Phe Gly Glu Gly Lys Ser Leu Gly Ala Lys  
 290 295 300  
 Ala Leu His Tyr Gly Ala Asp Asp Phe Gly Gly Val Ile Leu Asp Glu  
 305 310 315 320  
 Ser Val His Lys Ala Thr Gly Trp Ser Ile Gln Ser Ser Glu Glu Glu  
 325 330 335  
 Ile Cys Asn Ile Ile Arg Ser Glu Gly Phe Ile Pro Val Glu Arg Asn  
 340 345 350  
 Thr Phe Tyr Gln His Ile Ser Cys Thr Val Ser Ser Leu  
 355 360 365

&lt;210&gt;985

&lt;211&gt;438

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;985

Val Val Ile Met Asp Asn Ser Asp Asn Ser Phe His Thr Leu Glu Thr  
 1 5 10 15  
 Glu Gln Gly Ser Phe Leu Asn Asp Glu Leu Ala Val Glu Glu Val Ala  
 20 25 30  
 Ser Thr Glu Ser Thr Glu Ile Ser Asp Ala Thr Leu Cys Phe Ala Asp  
 35 40 45  
 Glu Ile Gln Glu Leu Pro Ser Pro Glu Lys Lys Val Ala Phe Ile Leu  
 50 55 60  
 Asn Lys Met Arg Glu Ala Leu Thr Gly Ser Ser Gln Gly Ser Asp Leu  
 65 70 75 80  
 Arg Leu Phe Trp Asp Leu Arg Lys Gln Cys Leu Pro Leu Phe Asn Glu  
 85 90 95  
 Ile Glu Asp Thr Ala Lys Arg Ala Asp His Trp Arg Cys Tyr Ile Glu  
 100 105 110  
 Leu Thr Lys Glu Gly Arg His Leu Lys Gly Leu Gln Asp Glu Glu Gly  
 115 120 125  
 Ser Phe Val Val Gly Gln Ile Asp Leu Ala Ile Thr Cys Leu Glu Lys  
 130 135 140  
 Asp Ile Leu Lys Phe Gln Glu Gly Thr Glu Asp Lys Ile Phe Lys Asp  
 145 150 155 160  
 Arg Glu Asp Asn Phe Leu Glu Ser Gln Ala Leu Asp Lys His Gln Ala  
 165 170 175  
 Phe Tyr Lys Gln His His Thr Ser Leu Leu Trp Leu Ser Ser Phe Ser  
 180 185 190  
 Ser Lys Ile Ile Asp Leu Arg Lys Glu Leu Ile Asn Val Gly Met Arg  
 195 200 205  
 Met Arg Leu Lys Ser Lys Phe Phe Gln Arg Leu Ser Asn Leu Gly Asn  
 210 215 220  
 Gln Val Phe Pro Lys Arg Lys Glu Leu Ile Glu Lys Val Ser Gln Thr  
 225 230 235 240  
 Phe Ala Glu Asp Val Asp Ala Phe Val Ala Lys Tyr Phe Ile Gly Ser  
 245 250 255  
 Asp Lys Glu Thr Leu Lys Lys Thr Val Phe Phe Leu Arg Lys Glu Ile  
 260 265 270  
 Lys Asn Leu Gln His Ala Ala Lys Arg Leu Phe Val Ser Ser His Val  
 275 280 285  
 Phe Ala Glu Thr Arg Leu Lys Leu Ser Lys Cys Trp Asp Gln Leu Lys

290 295 300  
 Gly Met Glu Lys Glu Ile Arg Gln Glu Gln Gly Arg Leu Arg Val Val  
 305 310 315 320  
 Ser Ala Glu Asn Ser Lys Glu Val Arg Gln Met Leu Ala Glu Val Ser  
 325 330 335  
 Ser Leu Leu Ile Glu Gly Asn Asp Leu Ser Lys Val Arg Lys Asp Leu  
 340 345 350  
 Glu Gly Ile Ser Lys Lys Ile Arg Ala Leu Asp Leu Thr His Asp Asp  
 355 360 365  
 Val Ile Ser Leu Lys Lys Glu Met Gln Gln Leu Phe Asp Gln Leu Arg  
 370 375 380  
 Glu Lys Gln Asp Ala Ala Glu His Ser Tyr Gln Glu Gln Leu Ala Lys  
 385 390 395 400  
 Asp Lys Gln Val Lys Lys Glu Ala Ala Arg Ser Leu Ala Glu Arg Ile  
 405 410 415  
 Thr Thr Phe Ser Lys Thr Cys Ser Glu Gly Thr Leu Leu Pro Asn Leu  
 420 425 430  
 Glu Lys Asn Gly Arg His  
 435

&lt;210&gt;986

&lt;211&gt;142

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;986

Ala His His Asn Ile Leu Lys Asn Leu Leu Arg Arg Asn Ile Thr Ser  
 1 5 10 15  
 Glu Ser Arg Glu Glu Trp Gln Thr Leu Lys Glu Leu Leu Gly Lys Met  
 20 25 30  
 Ser Phe Leu Pro Pro Pro Glu Lys Ile Ser Leu Asp Asn Gln Leu Asn  
 35 40 45  
 Leu Ala Leu Gln Thr Ile Val Asn Phe Phe Glu Glu Gln Leu Leu Ser  
 50 55 60  
 Ser Pro Asp Ser Arg Glu Lys Leu Val Asn Met Arg Gln Val Leu Lys  
 65 70 75 80  
 Gln Arg Arg Glu Arg Arg Gln Glu Leu Lys Asp Lys Leu Glu Gln Asp  
 85 90 95  
 Lys Lys Leu Leu Gly Ser Ser Gly Leu Asp Phe Asp Arg Ala Met Gln  
 100 105 110  
 Tyr Ser Ala Leu Val Glu Glu Asp Lys Arg Ala Leu Glu Glu Leu Asp  
 115 120 125  
 Ala Ser Ile Leu Glu Leu Lys Gln Gln Ile Gln Gln Leu Leu  
 130 135 140

&lt;210&gt;987

&lt;211&gt;119

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;987

Met Asp Ser Phe Cys Phe Asp Leu Leu Lys Val Ala Ala Lys Ala Ile  
 1 5 10 15  
 Asp Asp Lys Lys Gly Asn Asn Leu Val Val Leu Asp Val Arg Thr Ile  
 20 25 30  
 Ser Glu Phe Thr Asp Tyr Phe Val Phe Val Glu Gly Ser Val Asn Val  
 35 40 45  
 His Val Lys Ala Leu Ala Asn Thr Ile Val Glu Glu Leu Lys Lys Gln  
 50 55 60  
 Lys Val Ser Pro Leu His Val Glu Gly Ile Thr Asp Gly Asn Trp Val  
 65 70 75 80  
 Val Ile Asp Tyr Gly Phe Ile Val Val His Val Phe Val Ser Glu Ile  
 85 90 95  
 Arg Gly Lys Tyr Arg Leu Glu Glu Leu Trp Lys Asp Gly Phe Ile Val  
 100 105 110  
 Thr Ser Lys Leu Leu Ala Ser  
 115  
 <210>988

&lt;211&gt;424

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;988

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Leu Leu Asn Gly Val Arg Val Tyr Met Ser Lys Lys Arg Val Val Val
 1           5           10           15
Thr Gly Phe Gly Val Val Ser Cys Leu Gly Asn Glu Val Asp Thr Phe
          20           25           30
Tyr Asp Asn Leu Leu Ala Gly Val Ser Gly Val Arg Pro Ile Thr Ser
          35           40           45
Phe Pro Cys Glu Asp Tyr Ala Thr Arg Phe Ala Gly Trp Ile Pro Glu
          50           55           60
Phe Asn Pro Glu Pro Tyr Val Asp Lys Lys Gln Ala Arg Arg Val Asp
 65           70           75           80
Pro Phe Ile Thr Tyr Ala Met Val Ala Ala Lys Lys Ala Ile Ala Met
          85           90           95
Ser Arg Trp Asp Lys Asp His Leu Pro Ser Asp Pro Val Arg Cys Gly
          100          105          110
Val Ile Val Gly Ser Gly Met Gly Gly Leu Ser Thr Leu Asp Gln Gly
          115          120          125
Met Glu Arg Leu Leu Val Ile His Lys Lys Leu Ser Pro Phe Phe Ile
          130          135          140
Pro Tyr Ile Ile Thr Asn Met Ala Pro Ala Leu Ile Ala Met Asp Phe
          145          150          155          160
Gly Leu Met Gly Pro Asn Tyr Ser Ile Ser Thr Ala Cys Ala Thr Gly
          165          170          175
Asn Tyr Cys Ile Asp Ala Ala Tyr Gln His Leu Val Ser Gly Arg Ala
          180          185          190
Asp Met Ile Ile Cys Gly Gly Thr Glu Ala Ala Val Asn Arg Ile Gly
          195          200          205
Leu Glu Gly Phe Ile Ala Asn Arg Ala Leu Ser Glu Arg Asn Asp Ala
          210          215          220
Pro Asp Gln Ala Ser Arg Pro Trp Asp Arg Asp Arg Asp Gly Phe Val
          225          230          235          240
Leu Gly Glu Gly Ala Gly Ile Leu Val Leu Glu Thr Leu Glu Ser Ala
          245          250          255
Leu Arg Arg Asp Ala Pro Ile Phe Ala Glu Met Leu Gly Ser Tyr Val
          260          265          270
Thr Cys Asp Ala Phe His Ile Thr Ala Pro Arg Asp Asp Gly Glu Gly
          275          280          285
Ile Thr Ala Cys Val Leu Gly Ala Leu Asn Ser Ala Gly Ile Pro Lys
          290          295          300
Glu Arg Val Asn Tyr Val Asn Ala His Gly Thr Ser Thr Pro Leu Gly
          305          310          315          320
Asp Leu Ser Glu Val Leu Ala Val Lys Lys Ala Phe Gly Ser His Val
          325          330          335
Arg Asn Leu Arg Met Asn Ser Thr Lys Ser Leu Ile Gly His Cys Leu
          340          345          350
Gly Ala Ala Gly Gly Val Glu Ala Val Val Ala Ile Gln Ala Ile Leu
          355          360          365
Thr Gly Lys Leu His Pro Thr Ile Asn Leu Asp Asn Pro Ile Ala Glu
          370          375          380
Ile Glu Asp Phe Asp Val Val Ala Asn Lys Ala Gln Asp Trp Asp Ile
          385          390          395          400
Asp Val Ala Met Ser Asn Ser Phe Gly Phe Gly Gly His Asn Ser Thr
          405          410          415
Ile Leu Phe Ser Arg Tyr Val Pro
          420

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&lt;210&gt;989

&lt;211&gt;150

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;989

Met Met Lys Thr Lys Tyr Glu Tyr Ser Phe Gly Val Ile Pro Ile Lys

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      1           5           10           15
Phe Phe Gly Thr Pro Asp Lys Asn Thr Leu Lys Ala Cys Phe Ile Cys
      20           25           30
His Thr Arg Gly Lys His Trp Gly Phe Pro Lys Gly His Ser Glu Asp
      35           40           45
Lys Glu Gly Pro Gln Glu Ala Ala Glu Arg Glu Leu Val Glu Glu Thr
      50           55           60
Gly Leu Ser Val Val Asn Phe Phe Pro Lys Val Leu Ile Glu Gln Tyr
      65           70           75           80
Ser Phe Asn Asn Glu Glu Gln Val Phe Val Arg Lys Glu Val Thr Tyr
      85           90           95
Phe Leu Ala Glu Val Arg Gly Asp Ile His Ala Asp Pro Met Glu Ile
      100           105           110
Cys Asp Ser Gln Trp Leu Ser Leu Gln Glu Gly Leu Arg Leu Leu Ser
      115           120           125
Phe Pro Glu Leu Arg Asp Leu Thr Val Glu Ala Asp Lys Phe Ile Asn
      130           135           140
Asn Tyr Leu Phe Ser Ser
      145           150

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&lt;210&gt;990

&lt;211&gt;215

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;990

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Met Ser Lys Lys Pro Leu Tyr Val Ala His Pro Trp His Ser Pro Thr
      1           5           10           15
Leu Thr Gln Asp Asn Tyr Glu Ser Leu Cys Cys Tyr Ile Glu Ile Thr
      20           25           30
Pro Tyr Asp Ser Val Lys Phe Glu Leu Asp Lys Ala Thr Gly Leu Leu
      35           40           45
Lys Val Asp Arg Pro Gln Lys Phe Ser Asn Phe Cys Pro Cys Leu Tyr
      50           55           60
Gly Leu Leu Pro Gln Thr Tyr Cys Gly Thr Ala Ser Gly Asn Tyr Ser
      65           70           75           80
Gly Glu Gln Thr Arg Arg Glu Gly Ile Gln Gly Asp Lys Asp Pro Leu
      85           90           95
Asp Val Cys Val Leu Thr Glu Lys Asn Ile His His Gly Asn Ile Leu
      100           105           110
Leu Gln Ala Arg Pro Ile Gly Gly Leu Arg Ile Ile Asp Ser Gly Glu
      115           120           125
Ala Asp Asp Lys Ile Ile Ala Val Leu Glu Asp Asp Leu Val Phe Ala
      130           135           140
Glu Ile Glu Asp Ile Ser Asp Cys Pro Gly Thr Val Leu Asp Met Ile
      145           150           155           160
Gln His Tyr Phe Leu Thr Tyr Lys Ala Thr Pro Asn His Leu Ile Lys
      165           170           175
Gly Ser Pro Ala Lys Ile Glu Ile Val Gly Ile Tyr Gly Lys Lys Glu
      180           185           190
Ala Gln Lys Val Ile Gln Leu Ala His Glu Asp Tyr Leu Ser Tyr Ile
      195           200           205
Gly Asp Thr Ala Glu Val Asn
      210           215

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&lt;210&gt;991

&lt;211&gt;351

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;991

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Met Lys Tyr Ser Leu Asn Phe Lys Glu Ile Lys Ile Asp Asp Tyr Glu
      1           5           10           15
Arg Val Ile Glu Val Thr Cys Ser Lys Val Arg Leu His Ala Ile Ile
      20           25           30
Ala Ile His Gln Thr Ala Val Gly Pro Ala Leu Gly Gly Val Arg Ala
      35           40           45
Ser Leu Tyr Ser Ser Phe Glu Asp Ala Cys Thr Asp Ala Leu Arg Leu

```



50 55 60  
 Ala Arg Gly Met Thr Tyr Lys Ala Ile Ile Ser Asn Thr Gly Thr Gly  
 65 70 75 80  
 Gly Gly Lys Ser Val Ile Ile Leu Pro Gln Asp Ala Pro Ser Leu Thr  
 85 90 95  
 Glu Asp Met Leu Arg Ala Phe Gly Gln Ala Val Asn Ala Leu Glu Gly  
 100 105 110  
 Thr Tyr Ile Cys Ala Glu Asp Leu Gly Val Ser Ile Asn Asp Ile Ser  
 115 120 125  
 Ile Val Ala Glu Glu Thr Pro Tyr Val Cys Gly Ile Ala Asp Val Ser  
 130 135 140  
 Gly Asp Pro Ser Ile Tyr Thr Ala His Gly Gly Phe Leu Cys Ile Lys  
 145 150 155 160  
 Glu Thr Ala Lys Tyr Leu Trp Gly Ser Ser Ser Leu Arg Gly Lys Lys  
 165 170 175  
 Ile Ala Ile Gln Gly Ile Gly Ser Val Gly Arg Arg Leu Leu Gln Ser  
 180 185 190  
 Leu Phe Phe Glu Gly Ala Glu Leu Tyr Val Ala Asp Val Leu Glu Arg  
 195 200 205  
 Ala Val Gln Asp Ala Ala Arg Leu Tyr Gly Ala Thr Ile Val Pro Thr  
 210 215 220  
 Glu Glu Ile His Ala Leu Glu Cys Asp Ile Phe Ser Pro Cys Ala Arg  
 225 230 235 240  
 Gly Asn Val Ile Arg Lys Asp Asn Leu Ala Asp Leu Asn Cys Lys Ala  
 245 250 255  
 Ile Val Gly Val Ala Asn Asn Gln Leu Glu Asp Ser Ser Ala Gly Met  
 260 265 270  
 Met Leu His Glu Arg Gly Ile Leu Tyr Gly Pro Asp Tyr Leu Val Asn  
 275 280 285  
 Ala Gly Gly Leu Leu Asn Val Ala Ala Ala Ile Glu Gly Arg Val Tyr  
 290 295 300  
 Ala Pro Lys Glu Val Leu Leu Lys Val Glu Glu Leu Pro Ile Val Leu  
 305 310 315 320  
 Ser Lys Leu Tyr Asn Gln Ser Lys Thr Thr Gly Lys Asp Leu Val Ala  
 325 330 335  
 Leu Ser Asp Ser Phe Val Glu Asp Lys Leu Leu Ala Tyr Thr Ser  
 340 345 350

&lt;210&gt;992

&lt;211&gt;325

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;992

Met His Ser Glu Leu Pro Asn Tyr Gln Asn Ile Val Glu Ser Val Val  
 1 5 10 15  
 Thr Glu Ile Thr Thr Gln Leu Leu Asn Tyr Arg Ser Glu His Arg Leu  
 20 25 30  
 Val Pro Phe Trp Glu Lys Ser Asp Gly Ser Phe Ile Thr Ala Ala Asp  
 35 40 45  
 Tyr Gly Ser Gln Tyr Tyr Leu Lys Gln Gln Leu Ala Lys Ala Phe Pro  
 50 55 60  
 Asn Ile Pro Phe Ile Gly Glu Glu Thr Leu Tyr Pro Asp Gln Asp Asn  
 65 70 75 80  
 Glu Lys Ile Pro Glu Ile Leu Lys Phe Thr Arg Leu Leu Thr Ser Ser  
 85 90 95  
 Val Ser Arg Asp Asp Leu Ile Ser Thr Leu Val Pro Pro Pro Ser Pro  
 100 105 110  
 Thr Ser Leu Phe Trp Leu Val Asp Pro Ile Asp Gly Thr Ala Gly Phe  
 115 120 125  
 Ile Arg His Arg Ala Phe Ala Val Ala Ile Ser Leu Ile Tyr Glu Tyr  
 130 135 140  
 Arg Pro Ile Leu Ser Val Met Ala Cys Pro Ala Tyr Asn Gln Thr Phe  
 145 150 155 160  
 Lys Leu Tyr Ser Ala Ala Lys Gly His Gly Leu Ser Ile Val His Ser  
 165 170 175

Gln Asn Leu Asp Arg Arg Phe Val Tyr Ala Asp Arg Lys Gln Thr Lys  
 180 185 190  
 Gln Phe Cys Glu Ala Ser Leu Ala Ala Leu Asn Gln Gln His His Ala  
 195 200 205  
 Thr Arg Lys Leu Ser Leu Gly Leu Pro Asn Thr Pro Ser Pro Arg Arg  
 210 215 220  
 Val Glu Ser Gln Tyr Lys Tyr Ala Leu Val Ala Glu Gly Ala Val Asp  
 225 230 235 240  
 Phe Phe Ile Arg Tyr Pro Phe Ile Asp Ser Pro Ala Arg Ala Trp Asp  
 245 250 255  
 His Val Pro Gly Ala Phe Leu Val Glu Glu Ala Gly Gly Arg Val Thr  
 260 265 270  
 Asp Ala Leu Gly Ala Pro Leu Glu Tyr Arg Lys Glu Ser Leu Val Leu  
 275 280 285  
 Asn Asn His Ala Val Ile Leu Ala Ser Gly Asp Gln Glu Thr His Glu  
 290 295 300  
 Thr Thr Leu Ala Ala Leu Gln Asn Gln Leu Asn Val Val Pro Thr Asp  
 305 310 315 320  
 Lys Leu Ile Ala Leu  
 325

&lt;210&gt;993

&lt;211&gt;246

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;993

Gly Glu Leu Met Leu Ile Lys Leu Trp Arg Ala Thr Tyr Glu Gly Met  
 1 5 10 15  
 Tyr Thr Phe Leu Val Gly Ala Leu Leu Lys Leu Arg Tyr Arg Met Gln  
 20 25 30  
 Val Glu Gly Trp Asp Thr Leu Asn Ile Asn Pro Lys Gln Gly Cys Leu  
 35 40 45  
 Phe Leu Ala Asn His Val Ala Glu Val Asp Pro Ile Ile Leu Glu Tyr  
 50 55 60  
 Leu Phe Trp Ser Arg Phe His Val Arg Pro Met Ala Val Glu Tyr Leu  
 65 70 75 80  
 Phe His Ser Arg Val Val Gln Trp Phe Leu Asn Ser Val Arg Ser Ile  
 85 90 95  
 Pro Ile Pro Gln Leu Val Pro Gly Lys Glu Ser Lys Arg Ser Leu Glu  
 100 105 110  
 Arg Met Asn Val Cys Tyr Glu Glu Ala Ser Arg Ala Leu Asn Arg Gly  
 115 120 125  
 Glu Ser Leu Leu Leu Tyr Pro Ser Gly Arg Leu Ser Arg Thr Gly Lys  
 130 135 140  
 Glu Glu Ile Val Asn Gln Tyr Ser Ala Tyr Val Leu Leu His Arg Val  
 145 150 155 160  
 Met Glu Cys Asn Val Val Leu Val Arg Val Ser Gly Leu Trp Gly Ser  
 165 170 175  
 Ala Phe Ser Arg Tyr Lys Gln Asn Ser Thr Pro Lys Leu Gly Pro Ala  
 180 185 190  
 Phe Lys Glu Ala Phe Arg Ala Leu Leu Arg Arg Gly Ile Phe Phe Met  
 195 200 205  
 Pro Lys Arg Phe Val Lys Ile Thr Leu Cys Gln Val Asp His Leu Phe  
 210 215 220  
 Leu Lys Gln Phe Pro Thr Lys Gln Asp Leu Asn Thr Phe Leu Ala Ser  
 225 230 235 240  
 Trp Phe Lys Ser Arg Arg  
 245

&lt;210&gt;994

&lt;211&gt;567

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;994

Ile Leu Phe Trp Leu Leu Gly Leu Asn Gln Gly Asp Asp Asn Leu Pro  
 1 5 10 15

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Ile Glu Val Pro Leu Arg Ile Thr Arg Lys Leu Arg Arg Met His Asp
      20      25      30
Gln Arg Asn Arg Gly His Asn Asn His Asn Leu Arg Leu Arg Pro Gly
      35      40      45
Ser Thr Leu Leu Glu Ala Phe Leu Ile Leu Cys Ser Glu His Glu Glu
      50      55      60
Gly Ile Ala Cys Phe Asp Glu His Leu Gly Ser Leu Ser Tyr Arg Glu
      65      70      75      80
Leu Arg Asn Ala Ile Ile Ala Val Ala Ile Lys Val Ser Lys Phe Ser
      85      90      95
Glu Asp Arg Val Gly Val Met Met Pro Ala Ser Ile Gly Ala Phe Ile
      100      105      110
Ala Tyr Phe Gly Ile Leu Leu Ala Gly Lys Thr Pro Val Met Met Asn
      115      120      125
Trp Ser Gln Gly Leu Arg Glu Leu Arg Ala Cys Thr Lys Thr Val Glu
      130      135      140
Val Arg Arg Val Leu Thr Ser Gln Gln Phe Ile Lys His Leu Thr Glu
      145      150      155      160
Val Gln Gly Phe Val Glu Tyr Pro Phe Asp Leu Met Tyr Met Glu Asp
      165      170      175
Val Arg Lys Arg Leu Ser Trp Trp Glu Lys Cys Arg Ile Gly Leu Tyr
      180      185      190
Ser Lys Cys Ser Val Pro Trp Leu Leu Arg Ile Phe Gly Val Ser Gly
      195      200      205
Val Glu Ser Asp Asp Thr Ala Val Ile Leu Phe Thr Ser Gly Thr Glu
      210      215      220
Lys Leu Pro Lys Ala Val Pro Leu Thr His Lys Asn Leu Met Glu Asn
      225      230      235      240
Gln Glu Ala Cys Leu Lys Phe Phe Asp Pro Asn Thr Gln Asp Val Met
      245      250      255
Leu Ala Phe Leu Pro Pro Phe His Ala Tyr Gly Phe Asn Ser Cys Gly
      260      265      270
Leu Phe Pro Leu Leu Met Gly Val His Val Val Phe Ala Ser Asn Pro
      275      280      285
Leu Asn Pro Lys Lys Leu Val Glu Phe Ile Asp Asp Lys Lys Val Thr
      290      295      300
Phe Phe Gly Ser Thr Pro Val Phe Phe Asp Tyr Ile Leu Lys Thr Ala
      305      310      315      320
Lys Lys Gln Asn Ser Cys Leu Glu Ser Leu Arg Leu Val Val Ile Gly
      325      330      335
Gly Asp Ala Leu Lys Asp Thr Leu Tyr Glu Glu Thr Lys Lys Leu Gln
      340      345      350
Pro Gln Ile Ala Leu Tyr Gln Gly Tyr Gly Ala Thr Glu Cys Ser Pro
      355      360      365
Val Ile Ser Ile Thr Thr Lys Glu Ser Pro Arg Lys Ser Glu Cys Val
      370      375      380
Gly Met Pro Ile Glu Gly Met Asp Val Leu Ile Ile Ser Lys Glu Thr
      385      390      395      400
His Ile Pro Val Ser Ser Gly Glu Gln Gly Leu Ile Val Val Arg Gly
      405      410      415
Asn Ser Val Phe Ser Gly Tyr Leu Gly Asn His Glu His Gln Ser Phe
      420      425      430
Val Ser Leu Gly Gly Asp Gln Trp Tyr Leu Thr Gly Asp Leu Gly His
      435      440      445
Ile Gly Pro Ser Gly Asp Leu Phe Leu Glu Gly Arg Leu Ser Arg Phe
      450      455      460
Val Lys Ile Gly Gly Glu Met Val Ser Leu Glu Ala Leu Glu Ser Ile
      465      470      475      480
Leu His Glu His Phe Thr Glu Asn Gln Asn Glu Asp Ala Gly Ser Leu
      485      490      495
Val Val Cys Gly Ile Pro Gly Asp Lys Val Arg Leu Cys Leu Phe Thr
      500      505      510
Thr Leu Ala Thr Thr Ile His Glu Val Asn Asp Ile Leu Lys Ser Ala
      515      520      525

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Glu Thr Ser Ser Ile Val Lys Ile Ser Tyr Val His Gln Val Glu Ser  
 530 535 540  
 Ile Pro Ile Leu Gly Ile Gly Lys Pro Asp Tyr Val Ser Leu Asn Ala  
 545 550 555 560  
 Leu Ala Val Ser Leu Phe Gly  
 565

&lt;210&gt;995

&lt;211&gt;376

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;995

Val Cys Lys Glu Ser Phe Leu Thr Thr Ser Asp Val Ile Asp Phe Val  
 1 5 10 15  
 Thr Asn Asp Phe Leu Gly Phe Ala Arg Ser Pro Thr Ile Tyr Cys Glu  
 20 25 30  
 Val Ser Lys Arg Phe Gln Ile His Cys Gln Gln Phe Pro His Glu Lys  
 35 40 45  
 Leu Gly Ile Arg Gly Ser Arg Leu Met Val Gly Pro Ser Ser Val Ile  
 50 55 60  
 Asp Asp Leu Glu Ser Lys Ile Ala Ser Tyr His Gly Ala Pro Asn Ala  
 65 70 75 80  
 Phe Ile Val Asn Ser Gly Tyr Met Ala Asn Leu Gly Leu Cys His His  
 85 90 95  
 Val Ser Arg Ser Thr Asp Val Leu Leu Trp Asp Glu Glu Val His Met  
 100 105 110  
 Ser Val Val His Ser Leu Ser Ala Ile Ser Gly Gln His His Thr Phe  
 115 120 125  
 His His Asn Asn Leu Glu His Leu Glu Ser Leu Leu Gln Cys Tyr Arg  
 130 135 140  
 Ile Ser Ser Lys Gly Arg Ile Phe Ile Phe Val Ser Ser Val Tyr Ser  
 145 150 155 160  
 Phe Arg Gly Thr Leu Ala Pro Leu Glu Gln Ile Ile Ala Leu Ser Lys  
 165 170 175  
 Lys Tyr His Ala His Leu Ile Val Asp Glu Ala His Ala Met Gly Ile  
 180 185 190  
 Phe Gly Asp Asp Gly Lys Gly Leu Cys His Ala Leu Gly Tyr Glu Asn  
 195 200 205  
 Phe Tyr Ala Val Leu Val Thr Tyr Gly Lys Ala Leu Gly Thr Met Gly  
 210 215 220  
 Ala Ser Leu Leu Thr Ser Ser Glu Val Lys Tyr Asp Leu Met Gln Asn  
 225 230 235 240  
 Ser Pro Pro Leu Arg Tyr Ser Thr Ser Leu Ser Pro His Thr Leu Ile  
 245 250 255  
 Ser Ile Gly Thr Ala Tyr Asp Phe Leu Ala Ser Glu Gly Glu Ile Ala  
 260 265 270  
 Arg Lys Gln Val Phe Lys Leu Lys Glu His Phe His Glu Cys Phe Asp  
 275 280 285  
 Ser His Ala Pro Gly Cys Val Gln Pro Ile Phe Leu Pro His Thr Cys  
 290 295 300  
 Leu Glu Glu Ala Ile Ser Val Leu Glu Thr Thr Gly Ile His Val Gly  
 305 310 315 320  
 Val Val Ala Phe Ala Lys His Pro Phe Leu Arg Val Asn Leu His Ala  
 325 330 335  
 Tyr Asn Thr Val Asp Glu Val Asn Leu Leu Ala Gln Val Met Lys Pro  
 340 345 350  
 Tyr Leu Glu Lys Ser Ser His Arg Val His Ile Asn His Glu Phe His  
 355 360 365  
 Leu Trp Arg Glu Leu Cys Gln His  
 370 375

&lt;210&gt;996

&lt;211&gt;758

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;996

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Arg | Phe | Thr | Ala | Lys | Thr | Lys | Ser | Met | Gly | Tyr | Ile | Glu | Ser | Ser |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Thr | Phe | Arg | Leu | Tyr | Ala | Glu | Val | Ile | Val | Gly | Ser | Asn | Ile | Asn | Lys |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Val | Leu | Asp | Tyr | Gly | Val | Pro | Glu | Asn | Leu | Glu | His | Ile | Thr | Lys | Gly |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Thr | Ala | Val | Thr | Ile | Ser | Leu | Arg | Gly | Gly | Lys | Lys | Val | Gly | Val | Ile |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Tyr | Gln | Ile | Lys | Thr | Thr | Thr | Gln | Cys | Lys | Lys | Ile | Leu | Pro | Ile | Leu |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Gly | Leu | Ser | Asp | Ser | Glu | Ile | Val | Leu | Pro | Gln | Asp | Leu | Leu | Asp | Leu |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Leu | Phe | Trp | Ile | Ser | Gln | Tyr | Tyr | Phe | Ala | Pro | Leu | Gly | Lys | Thr | Leu |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Lys | Leu | Phe | Leu | Pro | Ala | Ile | Ser | Ser | Asn | Val | Ile | Gln | Pro | Lys | Gln |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| His | Tyr | Arg | Val | Val | Leu | Lys | Gln | Ser | Lys | Ala | Lys | Thr | Lys | Glu | Ile |
| 130 |     |     |     |     | 135 |     |     |     |     |     | 140 |     |     |     |     |
| Leu | Ala | Lys | Leu | Glu | Val | Leu | His | Pro | Ser | Gln | Gly | Ala | Val | Leu | Lys |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Ile | Leu | Leu | Gln | His | Ala | Ser | Pro | Pro | Gly | Leu | Ser | Ser | Leu | Met | Glu |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |     |
| Thr | Ala | Lys | Val | Ser | Gln | Ser | Pro | Ile | His | Ser | Leu | Glu | Lys | Leu | Gly |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Ile | Leu | Asp | Ile | Val | Asp | Ala | Ala | Gln | Leu | Glu | Leu | Gln | Glu | Asp | Leu |
|     | 195 |     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |
| Leu | Thr | Phe | Phe | Pro | Pro | Ala | Pro | Lys | Asp | Leu | His | Pro | Glu | Gln | Gln |
| 210 |     |     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |     |
| Ser | Ala | Ile | Asp | Lys | Ile | Phe | Ser | Ser | Leu | Lys | Thr | Ser | Gln | Phe | His |
| 225 |     |     |     | 230 |     |     |     |     |     | 235 |     |     |     | 240 |     |
| Thr | His | Leu | Leu | Phe | Gly | Ile | Thr | Gly | Ser | Gly | Lys | Thr | Glu | Ile | Tyr |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |     |
| Leu | Arg | Ala | Thr | Ser | Glu | Ala | Leu | Lys | Gln | Gly | Lys | Ser | Thr | Ile | Leu |
|     |     | 260 |     |     |     |     | 265 |     |     |     |     |     | 270 |     |     |
| Leu | Val | Pro | Glu | Ile | Ala | Leu | Thr | Val | Gln | Thr | Val | Ser | Leu | Phe | Lys |
|     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |     |
| Ala | Arg | Phe | Gly | Lys | Asp | Val | Gly | Val | Leu | His | His | Lys | Leu | Ser | Asp |
| 290 |     |     |     |     | 295 |     |     |     |     |     | 300 |     |     |     |     |
| Ser | Asp | Gln | Lys | Ser | His | Val | Ala | Pro | Ser | Phe | Arg | Arg | Ser | Leu | Arg |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     | 320 |     |
| Ile | Leu | Ile | Gly | Pro | Arg | Ser | Ala | Leu | Phe | Cys | Pro | Met | Lys | Asn | Leu |
|     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |     |
| Gly | Leu | Ile | Ile | Val | Asp | Glu | Glu | His | Asp | Pro | Ala | Tyr | Lys | Gln | Thr |
|     |     | 340 |     |     |     |     | 345 |     |     |     |     |     | 350 |     |     |
| Glu | Ser | Pro | Pro | Cys | Tyr | His | Ala | Arg | Asp | Val | Ala | Val | Met | Arg | Gly |
|     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |     |
| Lys | Leu | Ala | His | Ala | Thr | Val | Val | Leu | Gly | Ser | Ala | Thr | Pro | Ser | Leu |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Glu | Ser | Tyr | Thr | Asn | Ala | Leu | Ser | Gly | Lys | Tyr | Val | Leu | Ser | Arg | Leu |
| 385 |     |     |     | 390 |     |     |     |     |     | 395 |     |     |     | 400 |     |
| Ser | Ser | Arg | Ala | Ala | Ala | Ala | His | Pro | Ala | Lys | Ile | Ser | Leu | Ile | Asn |
|     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |     |
| Met | Asn | Leu | Glu | Arg | Glu | Lys | Ser | Lys | Thr | Lys | Ile | Leu | Phe | Ser | Gln |
|     |     | 420 |     |     |     | 425 |     |     |     |     |     | 430 |     |     |     |
| Pro | Val | Leu | Lys | Lys | Ile | Ala | Glu | Arg | Leu | Glu | Val | Gly | Glu | Gln | Val |
|     | 435 |     |     |     |     | 440 |     |     |     |     |     | 445 |     |     |     |
| Leu | Ile | Phe | Phe | Asn | Arg | Arg | Gly | Tyr | His | Thr | Asn | Val | Ser | Cys | Thr |
|     | 450 |     |     |     | 455 |     |     |     |     |     | 460 |     |     |     |     |
| Val | Cys | Lys | His | Thr | Leu | Lys | Cys | Pro | His | Cys | Asp | Met | Val | Leu | Thr |
| 465 |     |     |     | 470 |     |     |     |     |     | 475 |     |     |     | 480 |     |
| Phe | His | Lys | Tyr | Ala | Asn | Val | Leu | Leu | Cys | His | Leu | Cys | Asn | Ser | Ser |
|     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |     |     |
| Pro | Lys | Asp | Leu | Pro | Gln | Ser | Cys | Pro | Lys | Cys | Leu | Gly | Thr | Met | Thr |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |

Leu Gln Tyr Arg Gly Ser Gly Thr Glu Lys Ile Glu Lys Ile Leu Gln  
 515 520 525  
 Gln Ile Phe Pro Gln Ile Arg Thr Ile Arg Ile Asp Ser Asp Thr Thr  
 530 535 540  
 Lys Phe Lys Gly Ser His Glu Thr Leu Leu Arg Gln Phe Ala Thr Gly  
 545 550 555 560  
 Lys Ala Asp Val Leu Ile Gly Thr Gln Met Ile Ala Lys Gly Met Asn  
 565 570 575  
 Phe Ser Ala Val Thr Leu Ala Val Ile Leu Asn Gly Asp Ser Gly Leu  
 580 585 590  
 Tyr Ile Pro Asp Phe Arg Ala Ser Glu Gln Val Phe Gln Leu Ile Thr  
 595 600 605  
 Gln Val Ala Gly Arg Ser Gly Arg Ser His Leu Pro Gly Glu Ile Leu  
 610 615 620  
 Ile Gln Ser Phe Leu Pro Asp His Pro Thr Ile His Ser Ala Met Arg  
 625 630 635 640  
 Gln Asp Tyr Ser Ala Phe Tyr Ser Gln Glu Ile Thr Gly Arg Glu Leu  
 645 650 655  
 Cys Glu Tyr Pro Pro Phe Ile Arg Leu Ile Arg Cys Ile Phe Met Gly  
 660 665 670  
 Lys Cys Pro Lys Gln Thr Trp Glu Glu Ala His Arg Val His Asn Ile  
 675 680 685  
 Leu Lys Glu Gln Leu Glu Ser Thr Asn Pro Leu Met Pro Val Thr Pro  
 690 695 700  
 Cys Gly His Phe Lys Ile Lys Asp Thr Phe Arg Tyr Gln Phe Leu Ile  
 705 710 715 720  
 Lys Ser Ala Tyr Val Ile Pro Val Asn Lys Lys Leu His His Ala Leu  
 725 730 735  
 Met Leu Ala Lys Leu Ser Pro Lys Val Lys Phe Met Ile Asp Val Asp  
 740 745 750  
 Pro Met Thr Thr Phe Phe  
 755

&lt;210&gt;997

&lt;211&gt;230

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;997

Lys His Trp Leu Phe Met Glu Asn Ser Gln Asn Phe His Asp Thr Leu  
 1 5 10 15  
 Cys Gln Leu Leu Asp Arg Tyr Ser Glu Glu Leu Tyr Pro Thr Leu Ala  
 20 25 30  
 Ser Leu Leu Asn Val Thr Leu Pro Asn Thr Ala Ile Ser Ala Ser Val  
 35 40 45  
 Ser Ser Ile Pro Glu Lys Ala Val Glu Val Pro Asn Ala Glu Pro Gln  
 50 55 60  
 Pro Ile Thr Pro Pro Pro Thr Asn Leu Ser Gln Glu Lys Thr Lys  
 65 70 75 80  
 Pro Ser Asp Trp Lys Cys Val Pro Leu His Pro Asp Leu Ser Gln Asn  
 85 90 95  
 Ala Ile Leu Lys Glu Lys Tyr Pro Ala Leu Lys Asp Cys Ser Leu Pro  
 100 105 110  
 Ala Pro Lys Ile Pro Cys Ser Ile Phe Val Tyr Glu Glu Asn Asn Glu  
 115 120 125  
 Glu Val Leu Phe Phe Asn Arg Leu Ala Lys Ile Leu Thr Gln Gln Leu  
 130 135 140  
 Phe Pro Thr Lys Leu Thr Leu Ile His Ala Lys Thr Asn Ile Phe Val  
 145 150 155 160  
 Asn Asn Pro Asn Phe Phe Leu Ala Leu Ala Pro Leu Asn Val Ile Arg  
 165 170 175  
 Tyr Lys Ile Pro Thr Thr Asp Tyr His Gln Ser Leu Thr Gln Asn Gly  
 180 185 190  
 Cys Ile Phe Leu Pro Leu Tyr Ser Ser Leu Glu Tyr Glu Lys Asp Ser  
 195 200 205  
 Gln Leu Lys Arg Asn Leu Trp Ala Ile Leu Asn Arg Leu Pro Phe Ala

210 215 220  
 Tyr Thr Pro Lys Ser Ser  
 225 230  
 <210>998  
 <211>166  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>998  
 His Glu Ile Leu Val Ala Arg Met Cys Phe Cys Arg Leu Ser Ala Ile  
 1 5 10 15  
 Asp Phe Thr Leu Leu Cys Cys Thr Lys Thr Cys Phe Trp Arg Asn Leu  
 20 25 30  
 Gln Gln Thr Arg Pro Ile Ala Ala Asn Leu Gln Trp Glu Ser Tyr  
 35 40 45  
 Ala Glu Ala Leu Glu His Ser Lys Gln Asp His Lys Pro Ile Cys Leu  
 50 55 60  
 Phe Phe Thr Gly Ser Asp Trp Cys Met Trp Cys Ile Lys Met Gln Asp  
 65 70 75 80  
 Gln Ile Leu Gln Ser Ser Glu Phe Lys His Phe Ala Gly Val His Leu  
 85 90 95  
 His Met Val Glu Val Asp Phe Pro Gln Lys Asn His Gln Pro Glu Glu  
 100 105 110  
 Gln Arg Gln Lys Asn Gln Glu Leu Lys Ala Gln Tyr Lys Val Thr Gly  
 115 120 125  
 Phe Pro Glu Leu Val Phe Ile Asp Ala Glu Gly Lys Gln Leu Ala Arg  
 130 135 140  
 Met Gly Phe Glu Pro Gly Gly Gly Ala Ala Tyr Val Ser Lys Val Lys  
 145 150 155 160  
 Ser Ala Leu Lys Leu Arg  
 165  
 <210>999  
 <211>380  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>999  
 Met Ile Pro Ser Pro Thr Pro Ile Asn Phe Arg Asp Asp Thr Ile Leu  
 1 5 10 15  
 Glu Thr Asp Pro Lys Pro Ser Leu Ile Met Phe Ser Ser Lys Lys Thr  
 20 25 30  
 Glu Ile Ala Ser Glu Arg Arg Lys Ala His Pro Thr Leu Phe Lys Val  
 35 40 45  
 Leu Gly Thr Ile Trp Asn Ile Val Lys Phe Ile Ile Ser Ile Ile Leu  
 50 55 60  
 Phe Leu Pro Leu Ala Leu Leu Trp Val Leu Lys Lys Thr Cys Gln Phe  
 65 70 75 80  
 Phe Ile Leu Pro Ser Ser Ile Ile Ser Gln Ser Met Ser Lys Thr Ala  
 85 90 95  
 Val Ala Ile Arg Arg Met Thr Phe Leu Ser His Ile Lys Gln Leu Leu  
 100 105 110  
 Ser Leu Lys Glu Ile Ser Ala Ala Asp Arg Val Val Ile Gln Tyr Asp  
 115 120 125  
 Asp Leu Val Val Asp Ser Leu Ala Ile Lys Ile Pro His Ala Leu Pro  
 130 135 140  
 His Arg Trp Ile Leu Tyr Ser Gln Gly Asn Ser Gly Leu Met Glu Asn  
 145 150 155 160  
 Leu Phe Asp Arg Gly Asp Ser Ser Leu His Gln Leu Ala Lys Ala Thr  
 165 170 175  
 Gly Ser Asn Leu Leu Val Phe Asn Tyr Pro Gly Ile Met Ser Ser Lys  
 180 185 190  
 Gly Glu Ala Lys Arg Glu Asn Leu Val Lys Ser Tyr Gln Ala Cys Val  
 195 200 205  
 Arg Tyr Leu Arg Asp Glu Glu Thr Gly Pro Lys Ala Asn Gln Ile Ile  
 210 215 220  
 Ala Phe Gly Tyr Ser Leu Gly Thr Ser Val Gln Ala Ala Ala Leu Asp

225 230 235 240  
 Arg Glu Val Thr Asp Gly Ser Asp Gly Thr Ser Trp Ile Val Val Lys  
 245 250 255  
 Asp Arg Gly Pro Arg Ser Leu Ala Asp Val Ala Asn Gln Ile Cys Lys  
 260 265 270  
 Pro Ile Ala Ser Ala Ile Ile Lys Leu Val Gly Trp Asn Ile Asp Ser  
 275 280 285  
 Val Lys Pro Ser Glu Arg Leu Arg Cys Pro Glu Ile Phe Ile Tyr Asn  
 290 295 300  
 Ser Asn His Asp Gln Glu Leu Ile Ser Asp Gly Leu Phe Glu Arg Glu  
 305 310 315 320  
 Asn Cys Val Xaa Thr Pro Phe Leu Glu Leu Pro Glu Val Lys Thr Ser  
 325 330 335  
 Gly Thr Lys Ile Pro Ile Pro Glu Arg Asp Leu Leu His Leu Asn Pro  
 340 345 350  
 Leu Ser Pro Asn Val Val Asp Arg Leu Ala Ala Val Ile Ser Asn Tyr  
 355 360 365  
 Leu Asp Ser Glu Asn Arg Lys Ser Gln Gln Pro Asp  
 370 375 380  
 <210>1000  
 <211>377  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1000  
 Phe Thr Leu Leu Asn Leu Ser Asn Arg Ser Asp Ile Leu Ser Gly Ile  
 1 5 10 15  
 Phe Ser Asn Pro His Pro Val Ser Tyr Phe Ser Ser Thr His Ala Lys  
 20 25 30  
 Gln Leu Ser Asp Phe Ser Lys Lys His Pro Ile Leu Thr Lys Ile Val  
 35 40 45  
 Thr Ile Ile Val Lys Ile Phe Lys Leu Leu Ile Gly Leu Ile Ile Pro  
 50 55 60  
 Pro Leu Gly Ile Tyr Trp Leu Cys Gln Leu Val Cys Ser Leu Ala Leu  
 65 70 75 80  
 Phe Pro Arg Ser Ser Met Leu Tyr Ser Val Leu Lys Thr Cys Phe Lys  
 85 90 95  
 Lys Tyr Arg Leu Glu Gln Glu Ile Gln Asp Tyr Phe Val Lys Asn Leu  
 100 105 110  
 Asp Pro Ser Phe Lys Asp Pro Ala Val Ser Glu Ser Lys Arg Ile Thr  
 115 120 125  
 Ile Gln Gln Asp His Leu Thr Ile Asp Thr Leu Ala Ile His Phe Ser  
 130 135 140  
 Thr Ala Arg Pro Lys Arg Trp Leu Leu Ile Ser Leu Gly Ser Gly Asp  
 145 150 155 160  
 Phe Leu Glu Asp Met Ile Gly Leu Lys Asp Ser Leu Phe Leu Ser Trp  
 165 170 175  
 Lys Glu Leu Ala Lys Leu Leu Gly Ala Asn Ile Leu Ile Tyr Asn Tyr  
 180 185 190  
 Pro Gly Val Lys Ser Ser Thr Gly Lys Leu Asn Leu Glu Asn Leu Ala  
 195 200 205  
 Thr Val Ile Ile Tyr Val Gln Ser Thr Tyr Lys Ile Lys Phe Arg Ala  
 210 215 220  
 Leu Gly Leu Thr Lys Ser Ser Pro Arg Ile Phe Leu Arg Arg Gly Ser  
 225 230 235 240  
 Pro Val Cys Ser Phe Ala Lys Asn Pro Phe Thr Asn Ser Glu Thr Ser  
 245 250 255  
 Trp Val Ala Val Lys Asp Arg Ala Pro His Ser Leu Pro Ala Ala Ala  
 260 265 270  
 Asn Ser Phe Phe Gly Pro Ile Gly Lys Leu Ile Ala Val Leu Ala Arg  
 275 280 285  
 Trp Lys Met Asp Ala Glu Lys Asn Ser Arg Glu Leu Pro Cys Pro Glu  
 290 295 300  
 Ile Leu Val Tyr Ser Ala Asp Arg Phe Arg Pro Ser Glu Val Gly Asp  
 305 310 315 320



1031

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1002

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Asn Lys Met Ser Glu Leu Ala Pro Cys Ser Thr Gly Leu Gln Met Val
 1          5          10          15
Pro His Thr Gln Val His His Ala Leu Asp Thr Arg Arg Val Ile Leu
      20          25          30
Thr Ile Ala Ala Cys Leu Ser Leu Ile Ala Gly Ile Val Leu Val Gly
      35          40          45
Leu Gly Ala Ala Ala Ile Leu Pro Ser Leu Phe Gly Val Ile Gly Gly
      50          55          60
Met Ile Leu Ile Leu Phe Ser Ser Ile Ala Leu Ile Tyr Leu Tyr Lys
      65          70          75          80
Lys Thr Arg Glu Val Asp Gln Ile Ala Leu Glu Pro Leu Pro Glu Met
      85          90          95
Ile Ser Lys Asp Gln Ser Ile Ile Asp Phe Val Lys Thr Arg Asp Tyr
      100          105          110
Ala Ser Leu Glu Lys Lys Ala Thr Phe Ala Tyr Thr His Thr His Tyr
      115          120          125
Tyr Asp Gly Ser Met Val Phe Tyr Arg Glu Ile Pro Arg Phe Met Leu
      130          135          140
Gly Ser Tyr Leu Ala Leu Arg Lys Asp Met Asp Arg Gln Ala Leu Phe
      145          150          155          160

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&lt;210&gt;1003

&lt;211&gt;542

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1003

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Leu Gly Trp Lys Ser Asp Ile Tyr Thr Asn Ile Leu Glu Glu Arg Met
 1          5          10          15
Thr Ala Arg Ala Glu Tyr Leu Asp His Glu Asp Phe Leu Tyr Arg Ser
      20          25          30
His Lys Leu Gln Glu Leu Ser Glu Leu Gly Val Val Leu Tyr Pro Tyr
      35          40          45
Glu Phe Pro Gly Val Phe Ser Cys Glu Asp Ile Lys Lys Thr Phe Ala
      50          55          60
Ser Gln Glu Leu Gly Asn Ser Glu Ala Ala Met Ser Arg Ser Thr Pro
      65          70          75          80
Arg Val Arg Phe Ala Gly Arg Leu Val Leu Phe Arg Ala Met Gly Lys
      85          90          95
Asn Ala Phe Gly Gln Ile Leu Asp His Asn Gln Thr Ile Gln Val Met
      100          105          110
Phe Asn Arg Glu Phe Thr Ser Val His Gly Leu Ser Glu Asp Ala Glu
      115          120          125
Ile Thr Pro Ile Lys Phe Ile Glu Lys Lys Leu Asp Leu Gly Asp Ile
      130          135          140
Leu Gly Ile Asp Gly Tyr Leu Phe Phe Thr His Ser Gly Glu Leu Thr
      145          150          155          160
Val Leu Val Glu Thr Val Thr Leu Leu Cys Lys Ser Leu Leu Ser Leu
      165          170          175
Pro Asp Lys His Ala Gly Leu Ser Asp Lys Glu Val Arg Tyr Arg Lys
      180          185          190
Arg Trp Leu Asp Leu Ile Ser Ser Arg Glu Val Ser Asp Thr Phe Val
      195          200          205
Lys Arg Ser Tyr Ile Ile Lys Leu Ile Arg Asn Tyr Met Asp Ala His
      210          215          220
Gly Phe Leu Glu Val Glu Thr Pro Ile Leu Gln Asn Ile Tyr Gly Gly
      225          230          235          240
Ala Glu Ala Lys Pro Phe Thr Thr Thr Met Glu Ala Leu His Ser Glu
      245          250          255
Met Phe Leu Arg Ile Ser Leu Glu Ile Ala Leu Lys Lys Ile Leu Val
      260          265          270
Gly Gly Ala Pro Arg Ile Tyr Glu Leu Gly Lys Val Phe Arg Asn Glu
      275          280          285
Gly Ile Asp Arg Thr His Asn Pro Glu Phe Thr Met Ile Glu Ala Tyr

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290 295 300  
 Ala Ala Tyr Met Asp Tyr Lys Glu Val Met Val Phe Val Glu Asn Leu  
 305 310 315 320  
 Val Glu His Leu Val Arg Ala Val Asn His Asp Asn Thr Ser Leu Val  
 325 330 335  
 Tyr Ser Tyr Trp Lys His Gly Pro Gln Glu Val Asp Phe Lys Ala Pro  
 340 345 350  
 Trp Ile Arg Met Thr Met Lys Glu Ser Ile Ala Thr Tyr Ala Gly Ile  
 355 360 365  
 Asp Val Asp Val His Ser Asp Gln Lys Leu Lys Glu Ile Leu Lys Lys  
 370 375 380  
 Lys Thr Thr Phe Pro Glu Thr Ala Phe Ala Thr Ala Ser Arg Gly Met  
 385 390 395 400  
 Leu Ile Ala Ala Leu Phe Asp Glu Leu Val Ser Asp Asn Leu Ile Ala  
 405 410 415  
 Pro His His Ile Thr Asp His Pro Val Glu Thr Thr Pro Leu Cys Lys  
 420 425 430  
 Thr Leu Arg Ser Gly Asp Thr Ala Phe Val Glu Arg Phe Glu Ser Phe  
 435 440 445  
 Cys Leu Gly Lys Glu Leu Cys Asn Ala Tyr Ser Glu Leu Asn Asp Pro  
 450 455 460  
 Ile Arg Gln Arg Glu Leu Glu Gln Gln His Thr Lys Lys Glu Leu  
 465 470 475 480  
 Leu Pro Asp Ser Glu Cys His Pro Ile Asp Glu Glu Phe Leu Glu Ala  
 485 490 495  
 Leu Cys Gln Gly Met Pro Pro Ala Gly Gly Phe Gly Ile Gly Val Asp  
 500 505 510  
 Arg Leu Val Met Ile Leu Thr Asn Ala Ala Ser Ile Arg Asp Val Leu  
 515 520 525  
 Tyr Phe Pro Val Met Arg Arg Phe Asp Ala Glu Lys Thr Asn  
 530 535 540

&lt;210&gt;1004

&lt;211&gt;308

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1004

Val Ala Tyr Ala Ala Ala Pro Glu Phe Leu Leu Met Ser Met Thr Lys  
 1 5 10 15  
 Lys Thr Gln Val Ile Leu Tyr Cys Gly Lys His Thr Ile Gln Asn Val  
 20 25 30  
 Met Ala Ser Phe Ile Gly Lys Val Leu Ser Gly Ile Gly Arg Pro Gly  
 35 40 45  
 Trp His Leu Glu Cys Ser Ile Met Ala Met Glu Leu Leu Gly Asp Ser  
 50 55 60  
 Leu Asp Ile His Ala Gly Gly Val Asp Asn Ile Phe Pro His His Glu  
 65 70 75 80  
 Asn Glu Ile Ala Gln Ser Glu Ala Leu Ser Gly Lys Pro Phe Ala Arg  
 85 90 95  
 Tyr Trp Leu His Ser Glu His Leu Leu Ile Asp Gly Lys Lys Met Ser  
 100 105 110  
 Lys Ser Leu Gly Asn Phe Leu Thr Leu Arg Asp Leu Leu His Gln Glu  
 115 120 125  
 Phe Thr Gly Gln Glu Val Arg Tyr Met Leu Leu Gln Ser His Tyr Arg  
 130 135 140  
 Thr Gln Leu Asn Phe Thr Glu Glu Ala Leu Leu Ala Cys Arg His Ala  
 145 150 155 160  
 Leu Arg Arg Leu Lys Asp Phe Val Ser Arg Leu Glu Gly Val Asp Leu  
 165 170 175  
 Pro Gly Glu Ser Pro Leu Pro Arg Thr Leu Asp Ser Ser Ser Gln Phe  
 180 185 190  
 Ile Glu Ala Phe Ser Arg Ala Leu Ala Asn Asp Leu Asn Val Ser Thr  
 195 200 205  
 Gly Phe Ala Ser Leu Phe Asp Phe Val His Glu Ile Asn Thr Leu Ile  
 210 215 220

Asp Gln Gly His Phe Ser Lys Ala Asp Ser Leu Tyr Ile Leu Asp Thr  
 225 230 235 240  
 Leu Lys Lys Val Asp Thr Val Leu Gly Val Leu Pro Leu Thr Thr Ser  
 245 250 255  
 Val Cys Ile Pro Glu Thr Val Met Gln Leu Val Ala Glu Arg Glu Glu  
 260 265 270  
 Ala Arg Lys Thr Lys Asn Trp Ala Met Ala Asp Thr Leu Arg Asp Glu  
 275 280 285  
 Ile Leu Ala Ala Gly Phe Leu Val Glu Asp Ser Lys Ser Gly Pro Lys  
 290 295 300  
 Val Lys Pro Leu  
 305

&lt;210&gt;1005

&lt;211&gt;232

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1005

Gly Leu Tyr Phe Tyr Asn Thr Ala Ser Gln Lys Lys Glu Leu Phe Phe  
 1 5 10 15  
 Pro Asn His Thr Pro Val Arg Leu Tyr Thr Cys Gly Pro Thr Val Tyr  
 20 25 30  
 Asp Tyr Ala His Ile Gly Asn Phe Arg Thr Tyr Val Phe Glu Asp Ile  
 35 40 45  
 Leu Lys Arg Thr Leu Val Phe Phe Gly Tyr Ser Val Thr His Val Met  
 50 55 60  
 Asn Ile Thr Asp Val Glu Asp Lys Thr Ile Ala Gly Ala Ser Lys Lys  
 65 70 75 80  
 Asn Ile Pro Leu Gln Glu Tyr Thr Gln Pro Tyr Thr Glu Ala Phe Phe  
 85 90 95  
 Glu Asp Leu Asp Thr Leu Asn Ile Ala Arg Ala Asp Phe Tyr Pro His  
 100 105 110  
 Ala Thr His Tyr Ile Pro Gln Met Ile Gln Ala Ile Thr Lys Leu Leu  
 115 120 125  
 Glu Gln Gly Ile Ala Tyr Ile Gly Gln Asp Ala Ser Val Tyr Phe Ser  
 130 135 140  
 Leu Asn Arg Phe Pro Asn Tyr Gly Lys Leu Ser His Leu Asp Leu Ser  
 145 150 155 160  
 Ser Leu Arg Cys Cys Ser Arg Ile Ser Ala Asp Glu Tyr Asp Lys Glu  
 165 170 175  
 Asn Pro Ser Asp Phe Val Leu Trp Lys Ala Tyr Asn Pro Glu Arg Asp  
 180 185 190  
 Gly Val Ile Tyr Trp Glu Ser Pro Phe Gly Asn Arg Lys Thr Trp Met  
 195 200 205  
 Ala Phe Arg Met Phe Asp Tyr Gly Asp Gly Thr Ser Trp Arg Phe Phe  
 210 215 220  
 Gly Tyr Pro Cys Gly Arg Cys Arg  
 225 230

&lt;210&gt;1006

&lt;211&gt;242

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1006

Thr Ala Val Glu Asn Ile Arg Gln Gln Asn Leu Ala Leu Lys Ser Lys  
 1 5 10 15  
 Phe Lys Ile Asn Glu Leu Pro Cys Met Ile Leu Leu Ser His Glu Glu  
 20 25 30  
 Arg Glu Ile Tyr Arg Ile Gly Ser Phe Gly Asn Glu Thr Gly Ser Asn  
 35 40 45  
 Leu Gly Asp Ser Leu Cys His Ile Val Glu Ser Asp Ser Leu Leu Arg  
 50 55 60  
 Arg Ala Phe Pro Met Met Thr Ser Leu Ser Leu Ser Glu Leu Gln Arg  
 65 70 75 80  
 Tyr Tyr Arg Leu Ala Glu Glu Leu Ser His Lys Glu Phe Leu Lys His  
 85 90 95

Ala Leu Glu Leu Gly Val Arg Ser Asp Asp Tyr Phe Phe Leu Ser Glu  
 100 105 110  
 Lys Phe Arg Leu Leu Val Glu Val Gly Lys Met Asp Ser Glu Glu Cys  
 115 120 125  
 Gln Arg Ile Lys Lys Arg Leu Leu Asn Lys Asp Pro Lys Asn Glu Lys  
 130 135 140  
 Gln Thr His Phe Thr Val Ala Leu Ile Glu Phe Gln Glu Leu Ala Lys  
 145 150 155 160  
 Arg Ser Arg Ala Gly Val Arg Gln Asp Ala Ser Gln Val Ile Ala Pro  
 165 170 175  
 Leu Glu Ser Tyr Ile Ser Gln Phe Gly Gln Gln Asp Lys Asp Asn Leu  
 180 185 190  
 Trp Arg Val Glu Met Met Ile Ala Gln Phe Tyr Leu Asp Ser Asp Gln  
 195 200 205  
 Trp His His Ala Leu Gln His Ala Glu Val Ala Phe Glu Ala Ala Pro  
 210 215 220  
 Asn Glu Val Arg Ser His Ile Ser Arg Ser Leu Glu Tyr Ile Arg His  
 225 230 235 240  
 Gln Ser

&lt;210&gt;1007

&lt;211&gt;139

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1007

Val His Pro Leu Thr Leu Pro Lys Gln Ser Arg Val Leu Lys Arg Lys  
 1 5 10 15  
 Gln Phe Leu Tyr Ile Thr Arg Ser Gly Phe Cys Cys Arg Gly Ser Gln  
 20 25 30  
 Ala Thr Phe Tyr Val Val Pro Ser Arg His Pro Gly Thr Cys Arg Met  
 35 40 45  
 Gly Ile Thr Val Ser Lys Lys Phe Gly Lys Ala His Glu Arg Xaa Ser  
 50 55 60  
 Phe Lys Arg Val Val Arg Glu Val Phe Arg His Val Arg His Gln Leu  
 65 70 75 80  
 Pro Asn Cys Gln Ile Val Val Phe Pro Lys Gly His Lys Gln Arg Pro  
 85 90 95  
 Val Phe Ser Lys Leu Leu Gln Asp Phe Ile Asn Gln Ile Pro Glu Gly  
 100 105 110  
 Leu His Arg Leu Gly Lys Thr Lys Ala Thr Thr Gly Gly Glu Cys Thr  
 115 120 125  
 Pro Lys Ser Glu Lys Cys Val Thr Ala Pro Arg  
 130 135

&lt;210&gt;1008

&lt;211&gt;101

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1008

Met Ala Lys Lys Ser Ser Val Ala Arg Glu Ala Lys Arg Arg Arg Leu  
 1 5 10 15  
 Val Glu Ala Asn Phe Lys Lys Arg Ser Asp Leu Arg Lys Ile Val Lys  
 20 25 30  
 Ser Leu Ser Val Ser Glu Glu Glu Lys Glu Asn Ala Arg Ile Ser Leu  
 35 40 45  
 Asn Lys Met Lys Arg Asp Thr Ser Pro Thr Arg Leu His Asn Arg Cys  
 50 55 60  
 Leu Leu Thr Gly Arg Pro Arg Gly Tyr Leu Arg Lys Phe Ala Ile Ser  
 65 70 75 80  
 Arg Ile Cys Phe Arg Gln Met Ala Ser Met Gly Glu Ile Pro Gly Val  
 85 90 95  
 Ile Lys Ala Ser Trp  
 100

&lt;210&gt;1009

&lt;211&gt;169

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1009

Gln Thr Ile Asn Leu Ser Gly Thr Leu Arg Thr Met Leu Pro Ile Ser  
 1 5 10 15  
 Ile Leu Leu Phe Tyr Val Ile Leu Gly Cys Leu Ser Ala Tyr Ile Ala  
 20 25 30  
 Asp Lys Lys Lys Arg Asn Val Ile Gly Trp Phe Phe Ala Gly Ala Phe  
 35 40 45  
 Phe Gly Phe Ile Gly Leu Val Val Leu Leu Leu Leu Pro Ser Arg Arg  
 50 55 60  
 Asn Ala Leu Glu Lys Pro Gln Asn Asp Pro Phe Asp Asn Ser Asp Leu  
 65 70 75 80  
 Phe Asp Asp Leu Lys Lys Ser Leu Ala Gly Asn Asp Glu Ile Pro Ser  
 85 90 95  
 Ser Gly Asp Leu Gln Glu Ile Val Ile Asp Thr Glu Lys Trp Phe Tyr  
 100 105 110  
 Leu Asn Lys Asp Arg Glu Asn Val Gly Pro Ile Ser Phe Glu Glu Leu  
 115 120 125  
 Val Val Leu Leu Lys Gly Lys Thr Tyr Pro Glu Glu Ile Trp Val Trp  
 130 135 140  
 Lys Lys Gly Met Lys Asp Trp Gln Arg Val Lys Asp Val Pro Ser Leu  
 145 150 155 160  
 Gln Gln Ala Leu Lys Glu Ala Ser Lys  
 165

&lt;210&gt;1010

&lt;211&gt;189

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1010

His Ile Asn Arg Trp Thr Ile Arg Leu Ser Leu Thr Leu Ile Ile Ser  
 1 5 10 15  
 Thr Val Leu Tyr Phe Phe Ser Glu Glu Ile Glu Leu Ile Gly Gly Gly  
 20 25 30  
 Lys Met Glu Lys Gln Asn Leu Lys Leu Asp Val Lys Glu Ile Glu Phe  
 35 40 45  
 Pro Glu Thr Val Phe Ser Arg Asp Ile Glu Thr Arg Val Ile Gln Val  
 50 55 60  
 Ile Ile Leu His Cys Leu Ala Lys Ile Asn Gly Val Ser Leu Leu Gly  
 65 70 75 80  
 Gly Asn Leu Ile Asp Ala Leu Phe Gly Arg Asp Ile Glu Arg Met Lys  
 85 90 95  
 Gly Ile Tyr Val Glu Gln Asp Ser Lys Asn His Leu Val Lys Val Arg  
 100 105 110  
 Val Glu Val Asn Val Asp Tyr Gly Val Ser Ile Pro Glu Lys Thr Glu  
 115 120 125  
 Glu Ile Gln Gly Cys Ile Val Ser Glu Ile Ser Glu Tyr Thr Gly Leu  
 130 135 140  
 His Val Ala Ala Val His Val Ile Ile Lys Gly Leu Thr Gln Pro Lys  
 145 150 155 160  
 Asp Arg Ile Asp Glu Glu Ile Glu Glu Glu Val Ser Val Gln Asp Leu  
 165 170 175  
 Pro Ser Pro Glu Asp Phe Leu Leu Glu Asn Ser Glu Gly  
 180 185

&lt;210&gt;1011

&lt;211&gt;603

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1011

Met Arg Ile Glu Asp Phe Ser Leu Lys Leu Ile Pro Ser Ser Pro Gly  
 1 5 10 15  
 Val Tyr Leu Met Lys Asp Val His Asp Gln Val Leu Tyr Ile Gly Lys  
 20 25 30  
 Ala Lys Asn Leu Lys Asn Arg Leu Ala Ser Tyr Phe His Glu Lys Gly

1037

1038



His Tyr Lys Glu Leu Thr Thr Leu Glu Asp His Cys Pro His Val Glu  
 420 425 430  
 Asn Phe His Ala Gly Val Lys Asp Lys Ala Gly Gln Pro Val Phe Leu  
 435 440 445  
 Tyr Glu Ile Leu Lys Asp Ile His Lys Lys Val Ser Ala Phe Met Ser  
 450 455 460  
 Pro Gly Leu Leu Ala Phe Pro Phe Val Trp Tyr Arg Glu Leu Ser Arg  
 465 470 475 480  
 Ser

&lt;210&gt;1013

&lt;211&gt;339

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1013

Val Met Thr Glu Lys Lys Pro Thr Pro Met Met Glu Gln Trp His Gln  
 1 5 10 15  
 Cys Lys Glu Lys Ala Gly Asp Ser Val Leu Leu Phe Arg Met Gly Asp  
 20 25 30  
 Phe Tyr Glu Ala Phe Tyr Asp Asp Ala Val Leu Leu Ser Gln His Leu  
 35 40 45  
 Glu Leu Thr Leu Thr Gln Arg Gln Gly Ile Pro Met Ser Gly Ile Pro  
 50 55 60  
 Val Ser Thr Val Asp Thr Tyr Val Asp Arg Leu Ile Gly Lys Gly Phe  
 65 70 75 80  
 Lys Val Ala Val Ala Glu Gln Phe Gly Glu Pro Ala Lys Glu Lys Glu  
 85 90 95  
 Ser Lys Lys Ile Gly Pro Met Ala Arg Asp Ile Gln Arg Phe Val Thr  
 100 105 110  
 Pro Gly Thr Leu Leu Ser Ser Thr Leu Leu Gln Glu Lys Phe Asn Asn  
 115 120 125  
 Xaa Ile Val Ala Ile Thr Arg Ile Gly Ser Leu Phe Gly Phe Ala Cys  
 130 135 140  
 Leu Asp Leu Ser Thr Gly Ser Phe Phe Ile Glu Glu Cys Glu Asn Thr  
 145 150 155 160  
 Lys Glu Leu Val Asp Glu Ile Cys Arg Leu Ala Pro Ser Glu Val Leu  
 165 170 175  
 Ser Cys Asn Lys Phe Tyr Asn Lys Glu Thr Ala Ile Val Met Gln Leu  
 180 185 190  
 Gln Gln His Leu Lys Leu Thr Leu Ser Thr Tyr Ala Asp Trp Ala Phe  
 195 200 205  
 Glu His Lys Phe Ala Ser Gln Lys Leu Thr Thr His Phe Gln Val Ala  
 210 215 220  
 Ser Leu Asp Gly Phe Gly Leu Lys Gly Leu Val Pro Ala Ile Asn Ala  
 225 230 235 240  
 Ala Gly Gly Leu Leu Ser Tyr Ile Gln Asp Lys Leu Leu Leu Pro Thr  
 245 250 255  
 Lys His Ile Ala Ile Pro Gln Thr Arg Gly Lys Gln Gln Lys Leu Leu  
 260 265 270  
 Ile Asp Thr Ala Ser Gln Val Asn Leu Glu Leu Leu Ala Pro Leu Asn  
 275 280 285  
 Asp Pro Gln Gly Lys Asn Ser Leu Leu Arg Ile Met Asp His Thr Ser  
 290 295 300  
 Thr Pro Met Gly Gly Arg Leu Leu Arg Gln Ile Leu Ile Ser Pro Phe  
 305 310 315 320  
 Tyr Asn Pro Lys Glu Ile Leu Val Arg Gln Asp Ala Val Glu Phe Phe  
 325 330 335  
 Phe Gly Lys

&lt;210&gt;1014

&lt;211&gt;207

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1014

Leu Arg Thr Ala Met Tyr Thr Glu Glu Ser Leu Asp Asn Leu Arg His  
 1 5 10 15  
 Ser Ile Asp Ile Val Asp Val Leu Ser Glu His Ile His Leu Lys Arg  
 20 25 30  
 Ser Gly Ala Thr Tyr Lys Ala Cys Cys Pro Phe His Thr Glu Lys Thr  
 35 40 45  
 Pro Ser Phe Ile Val Asn Pro Ala Gly Ala His Tyr His Cys Phe Gly  
 50 55 60  
 Cys Gly Ala His Gly Asp Ala Ile Gly Phe Leu Met Gln His Leu Gly  
 65 70 75 80  
 Tyr Ser Phe Thr Glu Ala Ile Leu Val Leu Ser Lys Lys Phe Gln Val  
 85 90 95  
 Asp Leu Val Leu Gln Pro Lys Asp Ser Gly Tyr Thr Pro Pro Gln Gly  
 100 105 110  
 Leu Lys Glu Glu Leu Arg His Ile Asn Ser Glu Ala Glu Thr Phe Phe  
 115 120 125  
 Arg Tyr Cys Leu Tyr His Leu Pro Glu Ala Arg His Ala Leu Gln Tyr  
 130 135 140  
 Leu Tyr His Arg Gly Phe Ser Pro Asp Thr Ile Asp Arg Phe His Leu  
 145 150 155 160  
 Gly Tyr Gly Pro Glu Gln Ser Leu Phe Leu Gln Ala Met Glu Glu Arg  
 165 170 175  
 Lys Ile Ser Gln Glu Gln Leu His Thr Ala Gly Phe Phe Gly Asn Lys  
 180 185 190  
 Trp Phe Leu Phe Ala Arg Arg Ile Ser Phe Leu Ser Thr Met Arg  
 195 200 205

&lt;210&gt;1015

&lt;211&gt;402

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1015

Met Val Phe Val Cys Thr Lys Asn Leu Phe Pro Val His Asp Ala Leu  
 1 5 10 15  
 Gly His Thr Ile Gly Phe Ser Ala Arg Lys Phe Leu Glu Asn Ser Gln  
 20 25 30  
 Gly Gly Lys Tyr Val Asn Thr Pro Glu Thr Pro Ile Phe Lys Lys Ser  
 35 40 45  
 Arg Ile Leu Phe Gly Leu Asn Phe Ser Arg Arg Arg Ile Ala Lys Glu  
 50 55 60  
 Xaa Lys Val Ile Leu Val Glu Gly Gln Ala Asp Cys Leu Gln Met Ile  
 65 70 75 80  
 Asp Ser Gly Phe Asn Cys Thr Val Ala Ala Gln Gly Thr Ala Phe Thr  
 85 90 95  
 Glu Glu His Val Lys Glu Leu Ser Lys Leu Gly Val Leu Lys Val Phe  
 100 105 110  
 Leu Leu Phe Asp Ser Asp Glu Ala Gly Asn Lys Ala Ala Leu Arg Val  
 115 120 125  
 Gly Asp Leu Cys Gln Thr Ala Gln Met Ser Val Phe Val Cys Lys Leu  
 130 135 140  
 Pro Gln Gly His Asp Pro Asp Ser Phe Leu Met Gln Arg Gly Ser Ser  
 145 150 155 160  
 Gly Leu Ile Ala Leu Leu Glu Gln Ser Gln Asp Tyr Leu Thr Phe Leu  
 165 170 175  
 Ile Ser Glu Lys Met Ser Ser Tyr Pro Lys Phe Gly Pro Arg Glu Lys  
 180 185 190  
 Ala Leu Leu Val Glu Glu Ala Ile Arg Gln Ile Lys His Trp Gly Ser  
 195 200 205  
 Pro Ile Leu Val Tyr Glu His Leu Lys Gln Leu Ala Ser Leu Met Met  
 210 215 220  
 Val Pro Glu Asp Met Val Leu Ser Leu Ala Asn Pro Gln Val Thr Ala  
 225 230 235 240  
 Glu Pro Gln Asn Ile Pro Ile Lys Gln Lys Val Pro Lys Ile His Pro  
 245 250 255  
 His Ile Val Met Glu Thr Asp Ile Leu Arg Cys Met Leu Phe Cys Gly

260 265 270  
 Ser Asn Thr Lys Ile Leu Tyr Thr Ala Gln Phe Tyr Phe Val Pro Glu  
 275 280 285  
 Asp Phe Lys His Pro Glu Cys Arg Lys Leu Phe Ala Phe Met Ile Ser  
 290 295 300  
 Tyr Tyr Glu Lys Tyr Arg Lys Asn Val Pro Phe Asp Glu Ala Cys Gln  
 305 310 315 320  
 Val Leu Ser Asp Ser Gln Ile Leu Gln Leu Leu Thr Lys Arg Arg Leu  
 325 330 335  
 Asn Thr Glu Ala Leu Asp Thr Ile Phe Val Gln Ser Leu Gln Lys Met  
 340 345 350  
 Ala Asp Arg Arg Trp Arg Glu Gln Cys Lys Pro Leu Ser Leu Asn Gln  
 355 360 365  
 Asn Ile Gln Asp Lys Lys Leu Glu Ile Leu Glu Asp Tyr Val Gln Leu  
 370 375 380  
 Arg Lys Asp Arg Thr Ile Ile Thr Leu Leu Asp Pro Glu Ser Glu Leu  
 385 390 395 400  
 Ile Pro

&lt;210&gt;1016

&lt;211&gt;120

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1016

Ile Lys Ile Met Met His Arg Tyr Phe Ile Pro Leu Leu Ala Leu Leu  
 1 5 10 15  
 Ile Phe Ser Pro Ser Leu Val Arg Ala Glu Leu Gln Pro Ser Glu Asn  
 20 25 30  
 Arg Lys Gly Gly Trp Pro Thr Gln Leu Ser Cys Ala Glu Gly Ser Gln  
 35 40 45  
 Leu Phe Cys Lys Phe Glu Ala Ala Tyr Asn Asn Ala Ile Glu Glu Gly  
 50 55 60  
 Lys Pro Gly Ile Leu Val Phe Phe Ser Glu Arg Pro Thr Pro Glu Phe  
 65 70 75 80  
 Ala Asp Leu Thr Asn Gly Ser Phe Ser Leu Ser Thr Pro Ile Ala Lys  
 85 90 95  
 Gly Phe Asn Val Val Val Leu Cys Pro Gly Leu Ile Ser Pro Leu Asp  
 100 105 110  
 Phe Phe His Gln Asn Gly Ile Leu  
 115 120

&lt;210&gt;1017

&lt;211&gt;220

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1017

Ser Ile Phe Lys Asn Lys Ile Leu Pro Ser Tyr Phe Gly His Asn Phe  
 1 5 10 15  
 Asp Gln Leu Arg Arg His Tyr Met Arg Ile Ala Leu Ser Leu Leu Ser  
 20 25 30  
 Leu Leu Met Ile Phe Pro Ile Phe Gly Glu Glu Ser Arg Pro Gly Ser  
 35 40 45  
 Glu Asp Gly Asn Ser Asn Thr Gln Glu Ile Val Gly Ser Gln Asp Thr  
 50 55 60  
 Gln Val Cys Leu Tyr His Ser Tyr Glu Gln Gly Leu Gln Ala Ser Arg  
 65 70 75 80  
 Ile Glu Gly Lys Pro Leu Val Ile Val Val Leu Cys Asn Ser Gly Asp  
 85 90 95  
 Asp Gly Gln Ala Cys Thr Ile Gly Leu Ser Glu Thr Cys Glu Glu Val  
 100 105 110  
 Leu Ser Val Leu Ser Gly Ser Ile Phe Ser Glu Leu Ala Asn Phe Val  
 115 120 125  
 Val Leu Val Pro Ser Gly Val Asn Pro Leu Ile Tyr Pro Pro Ile Glu  
 130 135 140  
 Asp Pro Ile Leu Ala Glu Ile Val Lys Phe Lys Glu Leu Phe Lys Asp

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145          150          155          160
Glu Ser Phe Pro Thr Gly Leu Ser Ile Ile Val Val Gly Val Thr Pro
          165          170          175
Glu Gly Pro Gly Asp Ile Ile Glu Val Ser Pro Val Ser Leu Thr Val
          180          185          190
Glu Glu Glu Thr Leu Pro Ser Glu Gln Thr Thr Glu Val Glu Ser
          195          200          205
Thr Ser Glu Leu Gln Ser Glu Asp Pro Ala Ile Ala
          210          215          220
<210>1018
<211>1014
<212>PRT
<213>Chlamydia pneumoniae
<400>1018
Leu Glu Ser Phe Val Ser Glu His Pro Leu Thr Leu Gln Ser Met Ile
  1          5          10          15
Ala Thr Ile Leu Arg Phe Trp Ser Glu Gln Gly Cys Val Ile His Gln
          20          25          30
Gly Tyr Asp Leu Glu Val Gly Ala Gly Thr Phe Asn Pro Ala Thr Phe
          35          40          45
Leu Arg Ala Leu Gly Pro Glu Pro Tyr Lys Ala Ala Tyr Val Glu Pro
          50          55          60
Ser Arg Arg Pro Gln Asp Gly Arg Tyr Gly Val His Pro Asn Arg Leu
          65          70          75          80
Gln Asn Tyr His Gln Leu Gln Val Ile Leu Lys Pro Val Pro Glu Asn
          85          90          95
Phe Leu Ser Leu Tyr Thr Glu Ser Leu Arg Ala Ile Gly Leu Asp Leu
          100          105          110
Arg Asp His Asp Ile Arg Phe Ile His Asp Asp Trp Glu Asn Pro Thr
          115          120          125
Ile Gly Ala Trp Gly Leu Gly Trp Glu Val Trp Leu Asn Gly Met Glu
          130          135          140
Ile Thr Gln Leu Thr Tyr Phe Gln Ala Ile Gly Ser Lys Pro Leu Asp
145          150          155          160
Thr Ile Ser Gly Glu Ile Thr Tyr Gly Ile Glu Arg Ile Ala Met Tyr
          165          170          175
Leu Gln Lys Lys Thr Ser Ile Tyr Asp Val Leu Trp Asn Asp Thr Leu
          180          185          190
Thr Tyr Gly Gln Ile Thr Gln Ala Ser Glu Lys Ala Trp Ser Glu Tyr
          195          200          205
Asn Phe Asp Tyr Ala Asn Thr Glu Met Trp Phe Lys His Phe Glu Asp
          210          215          220
Phe Ala Glu Glu Ala Leu Arg Thr Leu Lys Asn Gly Leu Ser Val Pro
225          230          235          240
Ala Tyr Asp Phe Val Ile Lys Ala Ser His Ala Phe Asn Ile Leu Asp
          245          250          255
Ala Arg Gly Thr Ile Ser Val Thr Glu Arg Thr Arg Tyr Ile Ala Arg
          260          265          270
Ile Arg Gln Leu Thr Arg Leu Val Ala Asp Ser Tyr Val Glu Trp Arg
          275          280          285
Ala Ser Leu Asn Tyr Pro Leu Leu Ser Leu Ser Ser Thr Ser Glu Pro
          290          295          300
Lys Glu Thr Ser Glu Ser Val Val Pro Met Ile Ser Ser Thr Glu Asp
305          310          315          320
Leu Leu Leu Glu Ile Gly Ser Glu Glu Leu Pro Ala Thr Phe Val Pro
          325          330          335
Ile Gly Ile Gln Gln Leu Glu Ser Leu Ala Arg Gln Val Leu Thr Asp
          340          345          350
His Asn Ile Val Tyr Glu Gly Leu Glu Val Leu Gly Ser Pro Arg Arg
          355          360          365
Leu Ala Leu Leu Val Lys Asn Val Ala Pro Glu Val Val Gln Lys Ala
          370          375          380
Phe Glu Lys Lys Gly Pro Met Leu Thr Ser Leu Phe Ser Pro Asp Gly
385          390          395          400

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|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Val | Ser | Pro | Gln | Gly | Gln | Gln | Phe | Phe | Ala | Ser | Gln | Gly | Val | Asp | 405 | 410 | 415 |
| Ile | Ser | His | Tyr | Gln | Asp | Leu | Ser | Arg | His | Ala | Ser | Leu | Ala | Ile | Arg | 420 | 425 | 430 |
| Thr | Val | Asn | Gly | Ser | Glu | Tyr | Leu | Phe | Leu | Leu | His | Pro | Glu | Ile | Arg | 435 | 440 | 445 |
| Leu | Arg | Thr | Ala | Asp | Ile | Leu | Met | Gln | Glu | Leu | Pro | Leu | Leu | Ile | Gln | 450 | 455 | 460 |
| Arg | Met | Lys | Phe | Pro | Lys | Lys | Met | Val | Trp | Asp | Asn | Ser | Gly | Val | Glu | 465 | 470 | 475 |
| Tyr | Ala | Arg | Pro | Ile | Arg | Trp | Leu | Val | Ala | Leu | Tyr | Gly | Glu | His | Ile | 485 | 490 | 495 |
| Leu | Pro | Ile | Thr | Leu | Gly | Thr | Ile | Ile | Ala | Ser | Arg | Asn | Ser | Phe | Gly | 500 | 505 | 510 |
| His | Arg | Gln | Leu | Asp | Pro | Arg | Lys | Ile | Ser | Ile | Ser | Ser | Pro | Gln | Asp | 515 | 520 | 525 |
| Tyr | Val | Glu | Thr | Leu | Arg | Gln | Ala | Cys | Val | Val | Val | Ser | Gln | Lys | Glu | 530 | 535 | 540 |
| Arg | Arg | Met | Ile | Ile | Glu | Gln | Gly | Leu | Arg | Ala | His | Ser | Ser | Asp | Thr | 545 | 550 | 555 |
| Ile | Ser | Ala | Ile | Pro | Leu | Pro | Arg | Leu | Ile | Glu | Glu | Ala | Thr | Phe | Leu | 565 | 570 | 575 |
| Ser | Glu | His | Pro | Phe | Val | Ser | Cys | Gly | Gln | Phe | Ser | Glu | Gln | Phe | Cys | 580 | 585 | 590 |
| Ala | Leu | Pro | Lys | Glu | Leu | Leu | Ile | Ala | Glu | Met | Val | Asn | His | Gln | Lys | 595 | 600 | 605 |
| Tyr | Phe | Pro | Thr | His | Glu | Thr | Ser | Ser | Gly | Ala | Ile | Ser | Asn | Phe | Phe | 610 | 615 | 620 |
| Ile | Val | Val | Cys | Asp | Asn | Ser | Pro | Asn | Asp | Thr | Ile | Ile | Glu | Gly | Asn | 625 | 630 | 635 |
| Glu | Lys | Ala | Leu | Thr | Pro | Arg | Leu | Thr | Asp | Gly | Glu | Phe | Leu | Phe | Lys | 645 | 650 | 655 |
| Gln | Asp | Leu | Gln | Thr | Pro | Leu | Thr | Thr | Phe | Ile | Glu | Lys | Leu | Lys | Ser | 660 | 665 | 670 |
| Val | Thr | Tyr | Phe | Glu | Ala | Leu | Gly | Ser | Leu | Tyr | Asp | Lys | Val | Glu | Arg | 675 | 680 | 685 |
| Leu | Lys | Ala | His | Gln | Arg | Val | Phe | Ser | Thr | Phe | Ser | Ser | Leu | Ala | Ala | 690 | 695 | 700 |
| Ser | Glu | Asp | Leu | Asp | Ile | Ala | Ile | Gln | Tyr | Cys | Lys | Ala | Asp | Leu | Val | 705 | 710 | 715 |
| Ser | Ala | Val | Val | Asn | Glu | Phe | Pro | Glu | Leu | Gln | Gly | Ile | Met | Gly | Glu | 725 | 730 | 735 |
| Tyr | Tyr | Leu | Lys | His | Ala | Asn | Leu | Pro | Thr | Ala | Ser | Ala | Val | Ala | Val | 740 | 745 | 750 |
| Gly | Glu | His | Leu | Arg | His | Ile | Thr | Met | Gly | Gln | Lys | Leu | Ser | Thr | Ile | 755 | 760 | 765 |
| Gly | Thr | Leu | Leu | Ser | Leu | Leu | Asp | Arg | Leu | Asp | Asn | Leu | Leu | Ala | Cys | 770 | 775 | 780 |
| Phe | Ile | Leu | Gly | Leu | Lys | Pro | Thr | Ser | Ser | His | Asp | Pro | Tyr | Ala | Leu | 785 | 790 | 795 |
| Arg | Arg | Gln | Ser | Leu | Glu | Val | Leu | Thr | Leu | Val | Ser | Ala | Ser | Arg | Leu | 805 | 810 | 815 |
| Pro | Ile | Asp | Leu | Ala | Ser | Leu | Leu | Asp | Arg | Leu | Ala | Asp | His | Phe | Pro | 820 | 825 | 830 |
| Ser | Thr | Ile | Glu | Glu | Lys | Val | Trp | Asp | Lys | Ser | Lys | Thr | Ile | His | Glu | 835 | 840 | 845 |
| Ile | Leu | Glu | Phe | Ile | Trp | Gly | Arg | Leu | Lys | Thr | Phe | Met | Gly | Ser | Leu | 850 | 855 | 860 |
| Glu | Phe | Arg | Lys | Asp | Glu | Ile | Ala | Ala | Val | Leu | Ile | Asp | Ser | Ala | Thr | 865 | 870 | 875 |
| Xaa | Asn | Pro | Ile | Glu | Ile | Leu | Asp | Thr | Ala | Glu | Ala | Leu | Gln | Leu | Leu | 885 | 890 | 895 |
| Lys | Glu | Glu | His | Thr | Glu | Lys | Leu | Ala | Val | Ile | Thr | Thr | Thr | His | Asn | 900 | 905 | 910 |

Arg Leu Lys Lys Ile Leu Ser Ser Leu Lys Leu Ser Met Thr Ser Ser  
           915                          920                          925  
 Pro Ile Glu Val Leu Gly Asp Arg Glu Ser Asn Phe Lys Gln Val Leu  
           930                          935                          940  
 Asp Ala Phe Pro Gly Phe Pro Lys Glu Thr Ser Ala His Ala Phe Leu  
           945                          950                          955                          960  
 Glu Tyr Phe Leu Ser Leu Ala Asp Leu Ser Asn Asp Ile Gln Asp Phe  
                           965                          970                          975  
 Leu Asn Thr Val His Ile Ala Asn Asp Asp Gly Ala Ile Arg Asn Leu  
                           980                          985                          990  
 Arg Ile Ser Leu Leu Leu Thr Ala Met Asp Lys Phe Ser Leu Cys His  
           995                          1000                          1005  
 Trp Glu Ser Val Ala Val  
           1010

&lt;210&gt;1019

&lt;211&gt;97

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1019

Asn Gly Asn Asp Val Leu Lys Thr Cys Ser Leu Ile Leu Leu Asn Leu  
   1                          5                          10                          15  
 Cys Arg Tyr Phe Leu Leu Val Phe Cys Thr Ala Val Phe Phe Lys Arg  
                           20                          25                          30  
 Tyr Ile Leu Ile Leu Thr Arg Thr Val Arg His Thr Glu Ile Tyr Ala  
                           35                          40                          45  
 Cys Gly Glu Gly Val Thr Val Ala Leu Lys Ser Met Leu Pro Ser Met  
           50                          55                          60  
 Lys Gln Glu Ser Pro Ala Leu Ala Lys Glu Asn Val Lys Arg Lys Asn  
           65                          70                          75                          80  
 Val Ile Pro Trp Ser His Leu Cys Gln Asn Ile Pro Ser Pro Tyr Ser  
                           85                          90                          95  
 Leu

&lt;210&gt;1020

&lt;211&gt;207

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1020

Arg Val Gly Leu Pro Asn Tyr Ile Thr Phe Ser Arg Leu Phe Ile Thr  
   1                          5                          10                          15  
 Pro Ile Phe Met Ile Leu Tyr Leu Lys Gly Lys Trp Phe Gly Ile Thr  
                           20                          25                          30  
 Pro Val Val Leu Pro Tyr Val Leu Leu Ala Leu Leu Ala Ile Ser Glu  
           35                          40                          45  
 Leu Thr Asp Ala Ile Asp Gly Tyr Val Ala Arg Lys Phe Ser Gln Val  
           50                          55                          60  
 Thr Asp Leu Gly Lys Leu Leu Asp Pro Met Ala Asp Ser Ile Tyr Arg  
           65                          70                          75                          80  
 Ile Ser Ile Tyr Leu Thr Phe Thr Gln Pro Pro Val Asn Leu Pro Leu  
                           85                          90                          95  
 Leu Leu Val Phe Ile Phe Leu Ala Arg Asp Ser Val Ile Ser Thr Leu  
                           100                          105                          110  
 Arg Thr Val Cys Ala Phe Arg Gly Arg Val Val Ala Ala Arg Ala Ser  
           115                          120                          125  
 Gly Lys Leu Lys Ala Ile Leu Gln Gly Val Ser Phe Phe Leu Ile Leu  
           130                          135                          140  
 Leu Val Met Ile Pro His Ser Leu Gly Leu Leu Ser Gln Asn Gly Leu  
           145                          150                          155                          160  
 Glu Ile Phe Ala Ser Val Thr Val Ser Ile Ile Ala Val Tyr Ser Ile  
                           165                          170                          175  
 Ala Ser Gly Ile Glu Tyr Phe Trp Met Asn Lys Asn Phe Leu Ser Gln  
           180                          185                          190  
 Arg Ala Lys Thr Lys Asp Ser Glu Lys Asn His Glu Ser Lys Asp  
           195                          200                          205

&lt;210&gt;1021

&lt;211&gt;476

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1021

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Met Arg Ile Val Gln Val Ala Val Glu Phe Thr Pro Ile Val Lys Val
 1           5           10           15
Gly Gly Leu Gly Asp Ala Val Ala Ser Leu Ser Lys Glu Leu Ala Lys
          20           25           30
Gln Asn Asp Val Glu Val Leu Leu Pro His Tyr Pro Leu Ile Ser Lys
          35           40           45
Phe Ser Ser Ser Gln Val Leu Ser Glu Arg Ser Phe Tyr Tyr Glu Phe
          50           55           60
Leu Gly Lys Gln Gln Ala Ser Ala Ile Ser Tyr Ser Tyr Glu Gly Leu
          65           70           75           80
Thr Leu Thr Ile Ile Thr Leu Asp Ser Gln Ile Glu Leu Phe Ser Thr
          85           90           95
Thr Ser Val Tyr Ser Glu Asn Asn Val Val Arg Phe Ser Ala Phe Ala
          100          105          110
Ala Ala Ala Ala Tyr Leu Gln Glu Ala Asp Pro Ala Asp Ile Val
          115          120          125
His Leu His Asp Trp His Val Gly Leu Leu Ala Gly Leu Leu Lys Asn
          130          135          140
Pro Leu Asn Pro Val His Ser Lys Ile Val Phe Thr Ile His Asn Phe
          145          150          155          160
Gly Tyr Arg Gly Tyr Cys Ser Thr Gln Leu Leu Ala Ala Ser Gln Ile
          165          170          175
Asp Asp Phe His Leu Ser His Tyr Gln Leu Phe Arg Asp Pro Gln Thr
          180          185          190
Ser Val Leu Met Lys Gly Ala Leu Tyr Cys Ser Asp Tyr Ile Thr Thr
          195          200          205
Val Ser Leu Thr Tyr Val Gln Glu Ile Ile Asn Asp Tyr Ser Asp Tyr
          210          215          220
Glu Leu His Asp Ala Ile Leu Ala Arg Asn Ser Val Phe Ser Gly Ile
          225          230          235          240
Ile Asn Gly Ile Asp Glu Asp Val Trp Asn Pro Lys Thr Asp Pro Ala
          245          250          255
Leu Ala Val Gln Tyr Asp Ala Ser Leu Leu Ser Glu Pro Asp Val Leu
          260          265          270
Phe Thr Lys Lys Glu Glu Asn Arg Ala Val Leu Tyr Glu Lys Leu Gly
          275          280          285
Ile Ser Ser Asp Tyr Phe Pro Leu Ile Cys Val Ile Ser Arg Ile Val
          290          295          300
Glu Glu Lys Gly Pro Glu Phe Met Lys Glu Ile Ile Leu His Ala Met
          305          310          315          320
Glu His Ser Tyr Ala Phe Ile Leu Ile Gly Thr Ser Gln Asn Glu Val
          325          330          335
Leu Leu Asn Glu Phe Arg Asn Leu Gln Asp Cys Leu Ala Ser Ser Pro
          340          345          350
Asn Ile Arg Leu Ile Leu Asp Phe Asn Asp Pro Leu Ala Arg Leu Thr
          355          360          365
Tyr Ala Ala Ala Asp Met Ile Cys Ile Pro Ser His Arg Glu Ala Cys
          370          375          380
Gly Leu Thr Gln Leu Ile Ala Met Arg Tyr Gly Thr Val Pro Leu Val
          385          390          395          400
Arg Lys Thr Gly Gly Leu Ala Asp Thr Val Ile Pro Gly Val Asn Gly
          405          410          415
Phe Thr Phe Phe Asp Thr Asn Asn Phe Asn Glu Phe Arg Ala Met Leu
          420          425          430
Ser Asn Ala Val Thr Thr Tyr Arg Gln Glu Pro Asp Val Trp Leu Asn
          435          440          445
Leu Ile Glu Ser Gly Met Leu Arg Ala Ser Gly Leu Asp Ala Met Ala
          450          455          460
Lys His Tyr Val Asn Leu Tyr Gln Ser Leu Leu Ser

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465 470 475  
 <210>1022  
 <211>185  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1022  
 Met Glu Leu Val Val Thr Ser Arg Glu Thr Gly Lys Lys Ser Phe Leu  
 1 5 10 15  
 Lys Lys Ile Arg Gln Gln Gly Gly Ile Pro Ala Val Val Tyr Ser Ala  
 20 25 30  
 Gly Lys Ser Leu Ala Asn Ile Thr Val Asp Ala Leu Val Phe Lys Lys  
 35 40 45  
 Phe Leu Ser Asn Leu Glu Ser Gly Ala Leu Ser Ser Thr Val Phe Ser  
 50 55 60  
 Leu Ser Tyr Glu Gly Arg Ile Ile Lys Ala Leu Val Lys Asp Ile Gln  
 65 70 75 80  
 Tyr Gln Ile Thr Thr Tyr Asp Val Ile His Leu Asp Phe Glu Glu Leu  
 85 90 95  
 Val Glu Asp Arg Pro Val Lys Leu Asn Ile Pro Ile Arg Cys Ile Asn  
 100 105 110  
 Ala Val Asp Cys Ile Gly Val Lys Leu Gly Gly Ser Leu Arg Gln Val  
 115 120 125  
 Ile Arg Ala Val Arg Val Val Cys Lys Pro Lys Asp Ile Val Pro Phe  
 130 135 140  
 Leu Glu Leu Asp Val Arg Ser Val Gly Leu Ser Gln Thr Arg Lys Leu  
 145 150 155 160  
 Ser Asp Ile Lys Ile Pro Ala Gly Ile Glu Thr Ile Thr Pro Leu Lys  
 165 170 175  
 Glu Val Ala Ile Thr Val Ser Arg Arg  
 180 185

<210>1023  
 <211>150  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1023  
 Met Ala Lys Leu Ile Val Ala Ile Gly Asn Pro Arg His Gly Tyr Ala  
 1 5 10 15  
 Asn Thr Arg His Asn Ala Gly Phe Leu Leu Ala Asp Arg Leu Val Glu  
 20 25 30  
 Glu Leu Gln Gly Pro Pro Phe Lys Pro Leu Ser Lys Cys His Ala Leu  
 35 40 45  
 Met Thr Leu Val Glu Ser Ser Ser Gly Pro Leu Val Phe Ile Lys Pro  
 50 55 60  
 Thr Thr Phe Val Asn Leu Ser Gly Lys Ala Val Val Leu Ala Lys Lys  
 65 70 75 80  
 Tyr Phe Asn Val Ala Leu Ser His Ile Leu Val Leu Ala Asp Asp Val  
 85 90 95  
 Asn Arg Ser Phe Gly Lys Leu Arg Leu Cys Phe Asn Gly Gly Ser Gly  
 100 105 110  
 Gly His Asn Gly Leu Lys Ser Ile Thr Ala Ser Leu Gly Ser Asn Glu  
 115 120 125  
 Tyr Trp Gln Leu Arg Phe Gly Val Gly Arg Pro Leu Glu Glu Val Leu  
 130 135 140  
 Ser Tyr Leu Ile Ser Phe  
 145 150

<210>1024  
 <211>112  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1024  
 Met Gly Lys Lys Glu Asn Gln Leu Tyr Glu Gly Ala Tyr Val Phe Ser  
 1 5 10 15  
 Val Thr Leu Ser Glu Glu Ala Arg Arg Lys Ala Leu Asp Lys Val Ile  
 20 25 30



Ser Gly Ile Thr Asn Tyr Gly Gly Glu Ile His Lys Ile His Asp Gln  
                   35                  40                  45  
 Gly Arg Lys Lys Leu Ala Tyr Thr Ile Arg Gly Ala Arg Glu Gly Tyr  
           50                  55                  60  
 Tyr Tyr Phe Ile Tyr Phe Ser Val Ser Pro Gly Ala Ile Thr Glu Leu  
       65                  70                  75                  80  
 Trp Lys Glu Tyr His Leu Asn Glu Asp Leu Leu Arg Phe Met Thr Leu  
                   85                  90                  95  
 Arg Ala Asp Ser Val Lys Glu Val Leu Glu Phe Ala Ser Leu Pro Glu  
                   100                  105                  110

&lt;210&gt;1025

&lt;211&gt;82

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1025

Met Asn Lys Pro Val His Asn Asn Glu His Arg Arg Lys Arg Phe Asn  
   1                  5                  10                  15  
 Lys Lys Cys Pro Phe Val Ser Ala Gly Trp Lys Thr Ile Asp Tyr Lys  
                   20                  25                  30  
 Asp Val Glu Thr Leu Lys Lys Phe Ile Thr Glu Arg Gly Lys Val Leu  
                   35                  40                  45  
 Pro Arg Arg Ile Thr Gly Val Ser Ser Arg Phe Gln Gly Val Leu Ser  
                   50                  55                  60  
 Gln Ala Ile Lys Arg Ala Arg His Leu Gly Leu Leu Pro Phe Val Gly  
       65                  70                  75                  80  
 Glu Asp

&lt;210&gt;1026

&lt;211&gt;169

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1026

Met Lys Gln Gln Leu Leu Leu Glu Asp Val Asp Gly Leu Gly Arg  
   1                  5                  10                  15  
 Ser Gly Asp Leu Ile Thr Ala Arg Pro Gly Tyr Val Arg Asn Tyr Leu  
                   20                  25                  30  
 Ile Pro Lys Lys Lys Ala Val Ile Ala Gly Ala Gly Thr Leu Arg Leu  
                   35                  40                  45  
 Gln Ala Lys Leu Lys Glu Gln Arg Leu Ile Gln Ala Ala Ala Asp Lys  
                   50                  55                  60  
 Ala Asp Ser Glu Arg Ile Ala Gln Ala Leu Lys Asp Ile Val Leu Glu  
       65                  70                  75                  80  
 Phe Gln Val Arg Val Asp Pro Asp Asn Asn Met Tyr Gly Ser Val Thr  
                   85                  90                  95  
 Ile Ala Asp Ile Ile Ala Glu Ala Ala Lys Lys Asn Ile Phe Leu Val  
                   100                  105                  110  
 Arg Lys Asn Phe Pro His Ala His Tyr Ala Ile Lys Asn Leu Gly Lys  
                   115                  120                  125  
 Lys Asn Ile Pro Leu Lys Leu Lys Glu Glu Val Thr Ala Thr Leu Leu  
                   130                  135                  140  
 Val Glu Val Thr Ser Asp Asn Glu Tyr Val Thr Val Leu Ala Gln Gly  
       145                  150                  155                  160  
 Lys Gln Thr Glu Glu Asn Gln Glu Gly  
                   165

&lt;210&gt;1027

&lt;211&gt;81

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1027

Val Gly Arg Glu Cys Glu Gly Leu Phe Met Ser Tyr Lys Ile Thr Leu  
   1                  5                  10                  15  
 Pro Lys Ala Asp Glu Thr Thr Ala Lys Lys Val Thr Lys Ile Ser Glu  
                   20                  25                  30  
 Ala Ser Thr Leu Ile Phe Ser Val Leu Lys Glu Lys Ala Ser Leu Gly

35 40 45  
 Asn Val His Gly Phe Cys Gln Ala Glu Asn Ser Leu Ser Val Glu Ala  
 50 55 60  
 Asn Lys Ile Ile Ser Val Ala Glu Asn Thr Leu Ala Gly Cys Phe Cys  
 65 70 75 80  
 Lys

&lt;210&gt;1028

&lt;211&gt;455

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1028

Leu Val Trp Phe Ser Met Ile Leu Pro Pro Tyr Ser Tyr Ser Leu Lys  
 1 5 10 15  
 Ile Gly Ala Ala Val Leu Phe Phe Cys Ser Ile Leu His Thr Phe Leu  
 20 25 30  
 Thr Pro Trp Leu Tyr Thr Leu Cys Gln Ser Tyr Glu His Lys Lys Leu  
 35 40 45  
 Val Phe Pro Glu Cys Trp Lys Arg Tyr Ala Arg Leu Ser Glu Leu Phe  
 50 55 60  
 Arg Ile Leu Ser Arg Val Glu Ile Val Phe Phe Leu Trp Ala Val Pro  
 65 70 75 80  
 Leu Phe Phe Trp Phe Leu Tyr Thr Glu Gly Tyr Arg Ile Ser Met Ala  
 85 90 95  
 Tyr Phe Asn Ser Arg Asn Tyr Gly Phe Ala Val Phe Ile Met Val Ile  
 100 105 110  
 Leu Ile Leu Leu Glu Ser Arg Pro Ile Val Tyr Phe Ala Glu Leu Val  
 115 120 125  
 Leu Ser Ser Ile Ala Lys Leu Gly Lys Thr Ser Pro Lys Ser Trp Trp  
 130 135 140  
 Trp Thr Leu Met Ile Ala Pro Pro Leu Leu Ser Cys Leu Leu Lys Glu  
 145 150 155 160  
 Thr Gly Ala Met Ile Ile Gly Ala Thr Leu Leu Met Arg His Phe Tyr  
 165 170 175  
 Val Phe Thr Pro Ser Arg Arg Phe Ala Tyr Ala Thr Ile Gly Leu Leu  
 180 185 190  
 Phe Ser Asn Ile Ser Ile Gly Gly Leu Thr Ser Tyr Val Ser Ser Arg  
 195 200 205  
 Ala Leu Phe Leu Ile Phe Pro Ala Leu Lys Trp Glu His Ser Phe Phe  
 210 215 220  
 Leu Ser His Phe Ala Trp Lys Ala Ile Val Ala Ile Leu Ile Ser Thr  
 225 230 235 240  
 Thr Ile Tyr Tyr Phe Ile Phe Arg Lys Glu Phe Lys Lys Phe Pro Asp  
 245 250 255  
 Ile Pro Ser Asp Lys Asp Pro Ser Val Glu Lys Val Pro Trp Trp Ile  
 260 265 270  
 Ile Cys Val Asn Ile Ile Phe Val Gly Ser Ile Ile Leu Ser Arg Ser  
 275 280 285  
 Thr Pro Leu Phe Met Gly Ala Leu Leu Leu Phe Tyr Leu Gly Phe Gln  
 290 295 300  
 Lys Phe Thr Ile Phe Tyr Gln Asp Pro Ile Asn Leu Ser Lys Val Cys  
 305 310 315 320  
 Tyr Val Gly Leu Phe Tyr Ala Gly Leu Val Val Phe Gly Asp Leu Gln  
 325 330 335  
 Glu Trp Trp Val Leu Asn Leu Met Gln Gly Leu Ser Asp Phe Gly Tyr  
 340 345 350  
 Met Thr Val Ser Tyr Thr Leu Ser Ile Phe Leu Asp Asn Ala Leu Val  
 355 360 365  
 Asn Tyr Leu Val His Asn Leu Ser Val Ala Thr Asp Cys Tyr His Tyr  
 370 375 380  
 Leu Val Val Ala Gly Cys Met Ala Ala Gly Gly Leu Thr Leu Val Ser  
 385 390 395 400  
 Asn Ile Pro Asn Ile Val Gly Tyr Leu Ile Leu Arg Ser Ala Phe Pro  
 405 410 415

Ser Ser Thr Ile His Met Gly Trp Leu Phe Leu Gly Ala Leu Gly Pro  
 420 425 430  
 Ser Ile Ile Ser Leu Gly Val Phe Trp Leu Leu Lys Asn Val Pro Glu  
 435 440 445  
 Phe Leu Tyr Cys Phe Phe Arg  
 450 455

&lt;210&gt;1029

&lt;211&gt;362

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1029

Pro Val Asn His Gln Leu Leu Arg Glu Tyr Tyr Pro Ala Thr Gln Ala  
 1 5 10 15  
 Gly Phe Ser Phe Thr Ser Ala Leu Gly Asp Gly Ile Asp Leu Arg  
 20 25 30  
 Val Ser Gly Tyr Thr Thr Thr Val Pro Ala Leu Leu Asn Ser Ile Leu  
 35 40 45  
 Thr Ser Leu Pro Asn Leu Glu Ile Arg Tyr Glu Thr Phe Leu Val Tyr  
 50 55 60  
 Lys Lys Gln Leu Leu Glu Leu Tyr Gln Gly Ala Leu Leu Asn Cys Pro  
 65 70 75 80  
 Val Arg Ser Gly Leu Asp Glu Leu Ala Ser Gln Val Met Lys Glu Thr  
 85 90 95  
 Tyr Ser Asn Thr Thr Lys Leu Ser Ala Leu Glu Lys Leu Ser Phe Ser  
 100 105 110  
 Glu Phe Gln Ala Phe Ala Ser Asn Leu Phe Asn Ser Val His Leu Glu  
 115 120 125  
 Val Met Val Leu Gly Asn Leu Ser Glu Gln Gln Lys Lys Asp Tyr Leu  
 130 135 140  
 Glu Met Leu Gln Val Phe Thr Ala Ser Arg Ser Ser His Ala Thr Lys  
 145 150 155 160  
 Pro Phe Tyr Tyr Glu Leu Gln Ser Gln Glu Ile Ser Glu Ile His His  
 165 170 175  
 Asp Tyr Pro Leu Thr Ala Asn Gly Met Leu Leu Leu Leu Gln Asp Lys  
 180 185 190  
 Ser Ser Pro Ser Ile Gln Gly Lys Val Cys Ala Glu Met Leu Phe Glu  
 195 200 205  
 Trp Leu His His Ile Thr Phe Glu Glu Leu Arg Thr Gln Gln Gln Leu  
 210 215 220  
 Gly Tyr Met Val Gly Ala Arg Tyr Arg Glu Phe Ala Ser Arg Pro Phe  
 225 230 235 240  
 Gly Phe Leu Tyr Ile Arg Ser Asp Ala Tyr Ser Pro Glu Glu Leu Leu  
 245 250 255  
 Ala Lys Thr Ser Leu Phe Leu Asn Lys Val Ser Ala Ser Pro Glu Lys  
 260 265 270  
 Phe Gly Ile Ser Gln Glu Lys Phe Ala Asn Ile Arg Lys Ala Tyr Ile  
 275 280 285  
 Asn Lys Ile Leu Glu Pro Glu His Ser Leu Asp Met Met Asn Ser Ala  
 290 295 300  
 Leu Phe Ser Leu Ala Phe Glu Arg Pro Phe Val Glu Phe Ser Thr Pro  
 305 310 315 320  
 Asp Leu Lys Ile Ala Ile Ala Glu Thr Leu Thr Tyr Glu Glu Phe Leu  
 325 330 335  
 Lys Tyr Cys Gln Cys Phe Leu Ser Asn Glu Leu Gly Thr Gln Thr Ser  
 340 345 350  
 Val Tyr Ile Arg Gly Thr Gln Lys Thr Ser  
 355 360

&lt;210&gt;1030

&lt;211&gt;945

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1030

Ile Tyr Arg Ala Ile Tyr Met Gln Phe Ser Arg Tyr Leu Arg Tyr Ala  
 1 5 10 15

Phe Asp Asn Gln Tyr Leu Pro Glu Pro Leu Tyr Gln Lys Phe Ser Val  
 20 25 30  
 Phe His Gln Asn Tyr Ile Asp Ala Ala Thr Lys Lys Ala Ala Ala Asp  
 35 40 45  
 Gln Ala Glu Val Leu Cys Leu Gln Trp Val Lys Val Ile Ile Glu Asp  
 50 55 60  
 Leu Lys Asn Pro Phe Ile Phe Pro Pro Tyr His Lys Lys Ile Arg Ala  
 65 70 75 80  
 Pro Ile Asp Leu Phe Arg Leu Ser Ile Asp Phe Phe Ser Leu Val Ile  
 85 90 95  
 Asp Asp Lys Asn Ser Arg Ile Leu Asn Leu His Arg Leu Lys Glu Ile  
 100 105 110  
 Glu Glu Tyr Ile Ala Arg Gly Asp Asn Val Val Leu Leu Ala Asn His  
 115 120 125  
 Gln Thr Glu Cys Asp Pro Gln Leu Met Tyr Tyr Ala Leu Gly Lys Thr  
 130 135 140  
 His Pro Glu Leu Met Glu Asn Met Ile Phe Val Ala Gly Asp Arg Val  
 145 150 155 160  
 Thr Ser Asp Pro Leu Ala Arg Pro Phe Ser Met Gly Cys Asp Leu Leu  
 165 170 175  
 Cys Ile Tyr Ser Lys Arg His Ile Ala Thr Pro Pro Glu Leu Arg Glu  
 180 185 190  
 Glu Lys Leu Leu His Asn Gln Lys Ser Met Gln Ile Leu Lys Thr Leu  
 195 200 205  
 Leu Asn Glu Gly Gly Lys Phe Ile Tyr Val Ala Pro Ala Gly Gly Arg  
 210 215 220  
 Asp Arg Lys Asn Ala Glu Gly Arg Leu Tyr Pro Ser Glu Phe Ser Pro  
 225 230 235 240  
 Glu Ser Ile Glu Val Phe Arg Leu Leu Ala Lys Ala Ser Asn Gln Thr  
 245 250 255  
 Thr His Phe Tyr Pro Phe Ala Leu Lys Thr Tyr Asp Ile Leu Pro Pro  
 260 265 270  
 Pro Pro Lys Ile Glu Asn Ala Ile Gly Glu Gln Arg Ala Ile Phe Phe  
 275 280 285  
 Ala Pro Val Phe Phe Asn Phe Gly Ala Glu Leu Phe Phe Asp Ala Leu  
 290 295 300  
 Cys Ser Lys Glu Glu Leu Ile His Cys Asp Lys His Ala Gln Arg Thr  
 305 310 315 320  
 Leu Arg Ala Glu Lys Val Phe Ser Ile Cys Lys Lys Ser Ile Arg Gly  
 325 330 335  
 Ile Val Arg Cys Phe Gly Asn Phe Phe Val Pro Ile Leu Ile Cys Thr  
 340 345 350  
 Ser Leu Ser Ile Thr Ser Cys Glu Gln Gln Phe Lys Val Val Pro Asn  
 355 360 365  
 Gln Cys Pro Leu Gln Val Ser Thr Pro Ala Ala Ala Asp Gln Lys Ile  
 370 375 380  
 Glu Lys Ile Ile Cys Ser Asn Gly Leu Pro Leu Leu Ile Ile Ser Asp  
 385 390 395 400  
 Pro Asn Leu Pro Thr Ser Gly Ala Ala Leu Leu Val Lys Thr Gly Asn  
 405 410 415  
 Asn Ala Asp Pro Glu Glu Tyr Pro Gly Met Ala His Phe Thr Glu His  
 420 425 430  
 Cys Val Phe Leu Gly Asn Glu Lys Tyr Pro Glu Val Ser Gly Phe Pro  
 435 440 445  
 Gly Phe Leu Ser Glu Asn Asn Gly Val His Asn Ala Phe Thr Tyr Pro  
 450 455 460  
 Asn Lys Thr Val Phe Val Phe Ser Val Glu His Ser Ala Phe Ser Asp  
 465 470 475 480  
 Ala Leu Asp Gln Phe Val His Leu Phe Ile Asn Pro Lys Phe Arg Gln  
 485 490 495  
 Glu Asp Leu Asp Arg Glu Lys Tyr Ala Val His Gln Glu Phe Ala Ala  
 500 505 510  
 His Pro Leu Ser Asp Gly Arg Arg Val His Arg Ile Gln Gln Leu Val  
 515 520 525

Ala Pro Gln Gly His Pro Cys Ala Arg Phe Gly Cys Gly Asn Ala Ser  
530 535 540  
Thr Leu Thr Pro Val Thr Thr Glu Lys Met Ala Glu Trp Phe Lys Leu  
545 550 555 560  
His Tyr Ser Pro Glu Asn Met Cys Ala Ile Ala Tyr Thr Ser Ala Pro  
565 570 575  
Leu Ser Lys Ala Lys Lys Gln Phe Ser Lys Ile Phe Ser Gln Ile Pro  
580 585 590  
Arg Ser Lys Asn Tyr Glu Arg Gln Glu Pro Phe Leu Pro Ser Gly Asp  
595 600 605  
Thr Ser Ser Leu Lys Asn Leu Tyr Ile Asn Gln Ala Ile Gln Pro Thr  
610 615 620  
Ser Asn Leu Glu Ile Tyr Trp His Ile Tyr Glu Ser Ser His Pro Ile  
625 630 635 640  
Pro Leu Gly Cys Tyr Lys Ala Leu Ala Glu Val Leu Arg Asn Glu Ser  
645 650 655  
Lys Asn Ser Leu Val Ser Leu Leu Lys Asn Glu Gln Leu Ile Thr Asp  
660 665 670  
Leu Asp Val Glu Phe Phe Arg Ser Ser Leu Asn Thr Gly Glu Phe Tyr  
675 680 685  
Ile Ser Tyr Glu Leu Thr Glu Lys Gly Asp Lys His Tyr Ser Gln Val  
690 695 700  
Ile Asp Ser Thr Phe Gln Tyr Leu Arg Tyr Ile Gln Glu His Gly Ile  
705 710 715 720  
Pro Asn Tyr Thr Leu Glu Glu Ile Ser Thr Ile Asn Ala Leu Asn Tyr  
725 730 735  
Cys Tyr Ser Ser Lys Ser Pro Leu Phe Asp Leu Leu Cys Lys Gln Ile  
740 745 750  
Val Ser Leu Gly Asn Glu Asp Leu Ser Thr Tyr Pro Tyr His Ser Leu  
755 760 765  
Val Tyr Pro Lys Tyr Ser Ser Glu Asp Glu Ser Ala Leu Leu Asn Leu  
770 775 780  
Val Ser Asp Pro Glu Gln Ala Arg Phe Val Leu Ser Ser Lys Asn Ser  
785 790 795 800  
Glu His Trp Glu Glu Ala Thr Gln Leu His Asp Pro Ile Phe Asp Met  
805 810 815  
Thr Tyr Tyr Val Lys Ala Leu Asp Gly Val Gln Asp Tyr Gly Lys Val  
820 825 830  
Gln Ser Leu Lys Pro Ile Ala Leu Pro Lys Pro Asn Leu Phe Ile Pro  
835 840 845  
Lys Glu Val Thr Leu Pro Gly Val His Leu Leu Lys Lys Gln Glu Phe  
850 855 860  
Pro Phe Ala Pro Ala Leu Ser Tyr Gln Asp Asp Lys Leu Thr Leu Tyr  
865 870 875 880  
His Cys Glu Asp His Tyr Tyr Thr Ala Pro Lys Leu Ser Ser Gln Ile  
885 890 895  
Arg Ile Arg Ser Pro Gln Ile Ser Arg Ser Ser Pro Gln Phe Leu Val  
900 905 910  
Ala Thr Glu Leu Tyr Cys Leu Ala Cys Glu Pro Ser Ala Phe Glu Gly  
915 920 925  
Val Leu Ser Arg Asn Ala Ser Trp Phe Phe Phe Tyr Phe Cys Phe Arg  
930 935 940

Trp

945

&lt;210&gt;1031

&lt;211&gt;521

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1031

Ile Gly Thr Arg Lys Val Met Glu Asn Glu Ile Leu Leu Asn Ile Glu  
1 5 10 15  
Ser Lys Glu Ile Arg Tyr Ala His Leu Lys Asn Gly Gln Leu Phe Asp  
20 25 30  
Leu Thr Ile Glu Arg Lys Lys Val Arg Gln Leu Lys Gly Asn Ile Tyr

35 40 45  
 Arg Gly Arg Val Thr Asn Ile Leu Arg Asn Ile Gln Ser Ala Phe Ile  
 50 55 60  
 Asn Ile Asp Glu Arg Glu Asn Gly Phe Ile His Ile Ser Asp Ile Leu  
 65 70 75 80  
 Glu Asn Ser Lys Lys Phe Glu Gln Met Phe Asp Met Asp Val Asp Ala  
 85 90 95  
 Leu Pro Glu Glu Ala Ser Glu Ala Pro Leu Leu Ser Ser Glu Glu Ala  
 100 105 110  
 Pro Ile Glu Glu Phe Leu Lys Leu Asp Ser Pro Val Leu Val Gln Val  
 115 120 125  
 Val Lys Glu Pro Ile Gly Ser Lys Gly Ala Arg Leu Thr Ser Asn Ile  
 130 135 140  
 Ser Ile Pro Gly Arg Tyr Leu Val Leu Leu Pro Asn Ser Pro His Arg  
 145 150 155 160  
 Gly Val Ser Arg Lys Ile Glu Asp Pro His Met Arg Glu Gln Leu Lys  
 165 170 175  
 Gln Leu Ile Arg Ser Phe Glu Met Pro Gln Asp Met Gly Leu Ile Cys  
 180 185 190  
 Arg Thr Ala Ser Thr Thr Ala Ser Thr Glu Ala Leu Ile Asn Glu Ala  
 195 200 205  
 His Asp Leu Leu Leu Thr Trp Lys Thr Ile Leu Glu Lys Phe Tyr Ser  
 210 215 220  
 Thr Glu Gln Pro Cys Leu Leu Tyr Ser Glu Thr Asp Ile Leu Lys Lys  
 225 230 235 240  
 Ala Val Ile Thr Cys Ile Asp Lys Asn Tyr Lys Arg Leu Leu Ile Asp  
 245 250 255  
 Asp Tyr Ala Thr Tyr Gln Lys Cys Lys His Met Leu Lys Lys Tyr Ser  
 260 265 270  
 Pro Asp Ala Ser Ile Lys Ile Glu Tyr Tyr Arg Asp Ser Ile Pro Met  
 275 280 285  
 Phe Glu Arg Phe Asn Ile Glu Lys Glu Ile Asp Lys Ala Thr Arg Arg  
 290 295 300  
 Lys Ile Trp Leu Ser Ser Gly Gly Tyr Leu Phe Phe Asp Lys Thr Glu  
 305 310 315 320  
 Ala Met His Thr Ile Asp Val Asn Ser Gly Arg Ser Thr Gln Leu Glu  
 325 330 335  
 Ser Gly Val Glu Glu Thr Leu Val Gln Ile Asn Leu Glu Ala Ala Glu  
 340 345 350  
 Glu Ile Ala Arg Gln Leu Arg Leu Arg Asn Val Gly Gly Leu Val Ile  
 355 360 365  
 Ile Asp Phe Ile Asp Met Lys Ser Arg Lys Asn Gln Arg Arg Val Leu  
 370 375 380  
 Glu Arg Leu Lys Glu His Met Lys Tyr Asp Ala Ala Arg Cys Thr Ile  
 385 390 395 400  
 Leu Ser Met Ser Glu Phe Gly Leu Val Glu Met Thr Arg Gln Arg Asn  
 405 410 415  
 Arg Glu Ser Leu Met Gln Thr Leu Phe Thr Leu Cys Pro Tyr Cys Ser  
 420 425 430  
 Gly Asn Ala Ile Ile Lys Thr Pro Glu Ser Val Val Ile Glu Ile Glu  
 435 440 445  
 Arg Asp Leu Lys Lys Val Ile Asn His Lys Glu His Ser His Leu Cys  
 450 455 460  
 Leu Val Val His Pro Glu Ile Ala Ser Tyr Met Lys Gln Glu Asn Asp  
 465 470 475 480  
 Asp Asn Glu Met Ile Asn Leu Ala Lys Gln Leu Lys Ala Lys Leu Gln  
 485 490 495  
 Ile Asn Thr Ser Asp Ser Val His Leu Asn His Tyr Gln Phe Phe Ser  
 500 505 510  
 Leu Ile Thr Gly Glu Ser Ile Asp Leu  
 515 520  
 <210>1032  
 <211>176  
 <212>PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1032

Ser Leu Ser Leu Val Ser Tyr Leu Ser Asn Pro Gln Lys Ala Leu Val  
 1 5 10 15  
 Leu Gly Ser Lys Gly Phe Ser Met Asp Cys Val Asp Asn Leu Lys Leu  
 20 25 30  
 Tyr Ile Phe Arg Leu Lys Leu Pro Gly Asp Thr Glu Arg Ile Ser Tyr  
 35 40 45  
 Ser Ile Ser Pro Glu Tyr Ile Arg Glu Lys Gly Glu Glu Glu Leu Leu  
 50 55 60  
 Asn Ser Pro Ile Glu Val Glu Gly Ser Leu Gly Arg Ile Asp Ser Asp  
 65 70 75 80  
 Gln Trp Ile Leu Ser Leu Ser Leu Lys Thr Gln Leu Gly Leu Cys Cys  
 85 90 95  
 Pro Val Cys Asn Asn Phe Phe Ser His Ser Val Cys Leu Pro Asp Leu  
 100 105 110  
 Gln Arg Val Ile Ser His Asp Glu Val Gly Ser Gly Val Phe Asp Cys  
 115 120 125  
 Arg Pro Leu Ile Arg Gln Glu Leu Leu Leu Glu Ser Asp Cys Phe Glu  
 130 135 140  
 Glu Cys Ser Gly Gln Gly Cys Pro Glu Arg Lys Asn Ile Leu Lys Phe  
 145 150 155 160  
 Leu Glu Asp Arg Lys Lys His Glu Gly Asn Asn Pro Phe Glu Tyr Leu  
 165 170 175

&lt;210&gt;1033

&lt;211&gt;213

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1033

Met Glu Val Gln Ile Gly Ile Asp Leu Met Gly Gly Asp His Ser Pro  
 1 5 10 15  
 Leu Val Val Trp Gln Val Leu Val Asp Val Leu Lys Ser Gln Ser Ser  
 20 25 30  
 Thr Ile Pro Phe Ala Phe Thr Leu Phe Ala Ser Glu Glu Ile Arg Lys  
 35 40 45  
 Gln Ile Gln Glu Glu Phe Ile Ser Asp Leu Pro Gln Glu Lys Phe Pro  
 50 55 60  
 Lys Ile Ile Ser Ala Glu Asn Phe Val Ala Met Glu Asp Ser Pro Leu  
 65 70 75 80  
 Ala Ala Ile Arg Lys Lys Ser Ser Ser Met Ala Leu Gly Leu Asp Tyr  
 85 90 95  
 Leu Gln Glu Asp Lys Leu Asp Ala Phe Ile Ser Thr Gly Asn Thr Gly  
 100 105 110  
 Ala Leu Val Thr Leu Ala Arg Ala Lys Ile Pro Leu Phe Pro Ala Val  
 115 120 125  
 Ser Arg Pro Ala Leu Leu Val Cys Val Pro Thr Met Arg Gly His Ala  
 130 135 140  
 Val Ile Leu Asp Val Gly Ala Asn Ile Ser Val Lys Pro Glu Glu Met  
 145 150 155 160  
 Val Gly Phe Ala Arg Met Gly Leu Ala Tyr Arg Gln Cys Leu Gly Asp  
 165 170 175  
 Ser Lys Ile Pro Thr Ile Gly Leu Leu Asn Ile Gly Ser Glu Glu Arg  
 180 185 190  
 Lys Gly Thr Glu Ala His Arg Gln Thr Phe Arg Met Leu Arg Glu Thr  
 195 200 205  
 Phe Gly Glu Leu Ser  
 210

&lt;210&gt;1034

&lt;211&gt;127

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1034

Arg Tyr Gly Ser Pro Ser Pro Asp Ile Pro Tyr Ala Ala Arg Asp Ile  
 1 5 10 15

Trp Arg Thr Phe Leu Gly Asn Ile Glu Ser Gly Ala Val Phe Asp Gly  
                   20                  25                  30  
 Ala Ala Asp Ile Val Val Thr Asp Gly Phe Thr Gly Asn Ile Phe Leu  
                   35                  40                  45  
 Lys Thr Ala Glu Gly Val Phe Glu Phe Leu Gln Arg Ile Leu Gly Asp  
           50                  55                  60  
 Lys Leu Glu Ala Asp Ile Gln Arg Arg Leu Asp Tyr Thr Phe Tyr Pro  
           65                  70                  75                  80  
 Gly Ser Val Val Cys Gly Leu Ser Lys Leu Val Ile Lys Cys His Gly  
                   85                  90                  95  
 Lys Ala Cys Gly Ser Ser Leu Phe His Gly Ile Leu Gly Ser Ile Asn  
                   100                  105                  110  
 Leu Ala Gln Ala Arg Leu Cys Lys Arg Ile Leu Ser Asn Leu Ile  
                   115                  120                  125  
 <210>1035  
 <211>1617  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1035  
 Thr Pro Leu Arg Phe Lys Val Ala Met Val Ala Lys Lys Thr Val Arg  
   1                  5                  10                  15  
 Ser Tyr Arg Ser Ser Phe Ser His Ser Val Ile Val Ala Ile Leu Ser  
                   20                  25                  30  
 Ala Gly Ile Ala Phe Glu Ala His Ser Leu His Ser Ser Glu Leu Asp  
                   35                  40                  45  
 Leu Gly Val Phe Asn Lys Gln Phe Glu Glu His Ser Ala His Val Glu  
                   50                  55                  60  
 Glu Ala Gln Thr Ser Val Leu Lys Gly Ser Asp Pro Val Asn Pro Ser  
                   65                  70                  75                  80  
 Gln Lys Glu Ser Glu Lys Val Leu Tyr Thr Gln Val Pro Leu Thr Gln  
                   85                  90                  95  
 Gly Ser Ser Gly Glu Ser Leu Asp Leu Ala Asp Ala Asn Xaa Leu Glu  
                   100                  105                  110  
 His Phe Gln His Leu Phe Glu Glu Thr Thr Val Phe Gly Ile Asp Gln  
                   115                  120                  125  
 Lys Leu Val Trp Ser Asp Leu Asp Thr Arg Asn Phe Ser Gln Pro Thr  
                   130                  135                  140  
 Gln Glu Pro Asp Thr Ser Asn Ala Val Ser Glu Lys Ile Ser Ser Asp  
                   145                  150                  155                  160  
 Thr Lys Glu Asn Arg Lys Asp Leu Glu Thr Glu Asp Pro Ser Lys Lys  
                   165                  170                  175  
 Ser Gly Leu Lys Glu Val Ser Ser Asp Leu Pro Lys Ser Pro Glu Thr  
                   180                  185                  190  
 Ala Val Ala Ala Ile Ser Glu Asp Leu Glu Ile Ser Glu Asn Ile Ser  
                   195                  200                  205  
 Ala Arg Asp Pro Leu Gln Gly Leu Ala Phe Phe Tyr Lys Asn Thr Ser  
                   210                  215                  220  
 Ser Gln Ser Ile Ser Glu Lys Asp Ser Ser Phe Gln Gly Ile Ile Phe  
                   225                  230                  235                  240  
 Ser Gly Ser Gly Ala Asn Ser Gly Leu Gly Phe Glu Asn Leu Lys Ala  
                   245                  250                  255  
 Pro Lys Ser Gly Ala Ala Val Tyr Ser Asp Arg Asp Ile Val Phe Glu  
                   260                  265                  270  
 Asn Leu Val Lys Gly Leu Ser Phe Ile Ser Cys Glu Ser Leu Glu Asp  
                   275                  280                  285  
 Gly Ser Ala Ala Gly Val Asn Ile Val Val Thr His Cys Gly Asp Val  
                   290                  295                  300  
 Thr Leu Thr Asp Cys Ala Thr Gly Leu Asp Leu Glu Ala Leu Arg Leu  
                   305                  310                  315                  320  
 Val Lys Asp Phe Ser Arg Gly Gly Ala Val Phe Thr Ala Arg Asn His  
                   325                  330                  335  
 Glu Val Gln Asn Asn Leu Ala Gly Gly Ile Leu Ser Val Val Gly Asn  
                   340                  345                  350  
 Lys Gly Ala Ile Val Val Glu Lys Asn Ser Ala Glu Lys Ser Asn Gly



1055

|   |                     |                             |  |      |  |     |
|---|---------------------|-----------------------------|--|------|--|-----|
| 865   |                     | 870                         |  | 875  |  | 880 |
| Ala Gly Asp Ile   | Leu Phe Val Ser Asn | Ser Thr Gly Ser Tyr Gly Gly |  |      |  |     |
|   | 885                 | 890                         |  | 895  |  |     |
| Ala Ile Phe Val Gly Ser Leu Val Ala Ser Glu Gly Ser Asn Pro Arg |                     |                             |  |      |  |     |
|   | 900                 | 905                         |  | 910  |  |     |
| Thr Leu Thr Ile Thr Gly Asn Ser Gly Asp Ile Leu Phe Ala Lys Asn |                     |                             |  |      |  |     |
|   | 915                 | 920                         |  | 925  |  |     |
| Ser Thr Gln Thr Ala Ala Ser Leu Ser Glu Lys Asp Ser Phe Gly Gly |                     |                             |  |      |  |     |
|   | 930                 | 935                         |  | 940  |  |     |
| Gly Ala Ile Tyr Thr Gln Asn Leu Lys Ile Val Lys Asn Ala Gly Asn |                     |                             |  |      |  |     |
| 945   | 950                 | 955                         |  | 960  |  |     |
| Val Ser Phe Tyr Gly Asn Arg Ala Pro Ser Gly Ala Gly Val Gln Ile |                     |                             |  |      |  |     |
|   | 965                 | 970                         |  | 975  |  |     |
| Ala Asp Gly Gly Thr Val Cys Leu Glu Ala Phe Gly Gly Asp Ile Leu |                     |                             |  |      |  |     |
|   | 980                 | 985                         |  | 990  |  |     |
| Phe Glu Gly Asn Ile Asn Phe Asp Gly Ser Phe Asn Ala Ile His Leu |                     |                             |  |      |  |     |
|   | 995                 | 1000                        |  | 1005 |  |     |
| Cys Gly Asn Asp Ser Lys Ile Val Glu Leu Ser Ala Val Gln Asp Lys |                     |                             |  |      |  |     |
|   | 1010                | 1015                        |  | 1020 |  |     |
| Asn Ile Ile Phe Gln Asp Ala Ile Thr Tyr Glu Glu Asn Thr Ile Arg |                     |                             |  |      |  |     |
| 1025  | 1030                | 1035                        |  | 1040 |  |     |
| Gly Leu Pro Asp Lys Asp Val Ser Pro Leu Ser Ala Pro Ser Leu Ile |                     |                             |  |      |  |     |
|   | 1045                | 1050                        |  | 1055 |  |     |
| Phe Asn Ser Lys Pro Gln Asp Asp Ser Ala Gln His His Glu Gly Thr |                     |                             |  |      |  |     |
|   | 1060                | 1065                        |  | 1070 |  |     |
| Ile Arg Phe Ser Arg Gly Val Pro Lys Ile Pro Gln Ile Ala Ala Ile |                     |                             |  |      |  |     |
|   | 1075                | 1080                        |  | 1085 |  |     |
| Gln Glu Gly Thr Leu Ala Leu Ser Gln Asn Ala Glu Leu Trp Leu Ala |                     |                             |  |      |  |     |
|   | 1090                | 1095                        |  | 1100 |  |     |
| Gly Leu Lys Gln Glu Thr Gly Ser Ser Ile Val Leu Ser Ala Gly Ser |                     |                             |  |      |  |     |
| 1105  | 1110                | 1115                        |  | 1120 |  |     |
| Ile Leu Arg Ile Phe Asp Ser Gln Val Asp Ser Ser Ala Pro Leu Pro |                     |                             |  |      |  |     |
|   | 1125                | 1130                        |  | 1135 |  |     |
| Thr Glu Asn Lys Glu Glu Thr Leu Val Ser Ala Gly Val Gln Ile Asn |                     |                             |  |      |  |     |
|   | 1140                | 1145                        |  | 1150 |  |     |
| Met Ser Ser Pro Thr Pro Asn Lys Asp Lys Ala Val Asp Thr Pro Val |                     |                             |  |      |  |     |
|   | 1155                | 1160                        |  | 1165 |  |     |
| Leu Ala Asp Ile Ile Ser Ile Thr Val Asp Leu Ser Ser Phe Val Pro |                     |                             |  |      |  |     |
|   | 1170                | 1175                        |  | 1180 |  |     |
| Glu Gln Asp Gly Thr Leu Pro Leu Pro Pro Glu Ile Ile Ile Pro Lys |                     |                             |  |      |  |     |
| 1185  | 1190                | 1195                        |  | 1200 |  |     |
| Gly Thr Lys Leu His Ser Asn Ala Ile Asp Leu Lys Ile Ile Asp Pro |                     |                             |  |      |  |     |
|   | 1205                | 1210                        |  | 1215 |  |     |
| Thr Asn Val Gly Tyr Glu Asn His Ala Leu Leu Ser Ser His Lys Asp |                     |                             |  |      |  |     |
|   | 1220                | 1225                        |  | 1230 |  |     |
| Ile Pro Leu Ile Ser Leu Lys Thr Ala Glu Gly Met Thr Gly Thr Pro |                     |                             |  |      |  |     |
|   | 1235                | 1240                        |  | 1245 |  |     |
| Thr Ala Asp Ala Ser Leu Ser Asn Ile Lys Ile Asp Val Ser Leu Pro |                     |                             |  |      |  |     |
|   | 1250                | 1255                        |  | 1260 |  |     |
| Ser Ile Thr Pro Ala Thr Tyr Gly His Thr Gly Val Trp Ser Glu Ser |                     |                             |  |      |  |     |
| 1265  | 1270                | 1275                        |  | 1280 |  |     |
| Lys Met Glu Asp Gly Arg Leu Val Val Gly Trp Gln Pro Thr Gly Tyr |                     |                             |  |      |  |     |
|   | 1285                | 1290                        |  | 1295 |  |     |
| Lys Leu Asn Pro Glu Lys Gln Gly Ala Leu Val Leu Asn Asn Leu Trp |                     |                             |  |      |  |     |
|   | 1300                | 1305                        |  | 1310 |  |     |
| Ser His Tyr Thr Asp Leu Arg Ala Leu Lys Gln Glu Ile Phe Ala His |                     |                             |  |      |  |     |
|   | 1315                | 1320                        |  | 1325 |  |     |
| His Thr Ile Ala Gln Arg Met Glu Leu Asp Phe Ser Thr Asn Val Trp |                     |                             |  |      |  |     |
|   | 1330                | 1335                        |  | 1340 |  |     |
| Gly Ser Gly Leu Gly Val Glu Asp Cys Gln Asn Ile Gly Glu Phe     |                     |                             |  |      |  |     |
| 1345  | 1350                | 1355                        |  | 1360 |  |     |
| Asp Gly Phe Lys His His Leu Thr Gly Tyr Ala Leu Gly Leu Asp Thr |                     |                             |  |      |  |     |
|   | 1365                | 1370                        |  | 1375 |  |     |
| Gln Leu Val Glu Asp Phe Leu Ile Gly Gly Cys Phe Ser Gln Phe Phe |                     |                             |  |      |  |     |

1380 1385 1390  
 Gly Lys Thr Glu Ser Gln Ser Tyr Lys Ala Lys Asn Asp Val Lys Ser  
 1395 1400 1405  
 Tyr Met Gly Ala Ala Tyr Ala Gly Ile Leu Ala Gly Pro Trp Leu Ile  
 1410 1415 1420  
 Lys Gly Ala Phe Val Tyr Gly Asn Ile Asn Asn Asp Leu Thr Thr Asp  
 1425 1430 1435 1440  
 Tyr Gly Thr Leu Gly Ile Ser Thr Gly Ser Trp Ile Gly Lys Gly Phe  
 1445 1450 1455  
 Ile Ala Gly Thr Ser Ile Asp Tyr Arg Tyr Ile Val Asn Pro Arg Arg  
 1460 1465 1470  
 Phe Ile Ser Ala Ile Val Ser Thr Val Val Pro Phe Val Glu Ala Glu  
 1475 1480 1485  
 Tyr Val Arg Ile Asp Leu Pro Glu Ile Ser Glu Gln Gly Lys Glu Val  
 1490 1495 1500  
 Arg Thr Phe Gln Lys Thr Arg Phe Glu Asn Val Ala Ile Pro Phe Gly  
 1505 1510 1515 1520  
 Phe Ala Leu Glu His Ala Tyr Ser Arg Gly Ser Arg Ala Glu Val Asn  
 1525 1530 1535  
 Ser Val Gln Leu Ala Tyr Val Phe Asp Val Tyr Arg Lys Gly Pro Val  
 1540 1545 1550  
 Ser Leu Ile Thr Leu Lys Asp Ala Ala Tyr Ser Trp Lys Ser Tyr Gly  
 1555 1560 1565  
 Val Asp Ile Pro Cys Lys Ala Trp Lys Ala Arg Leu Ser Asn Asn Thr  
 1570 1575 1580  
 Glu Trp Asn Ser Tyr Leu Ser Thr Tyr Leu Ala Phe Asn Tyr Glu Trp  
 1585 1590 1595 1600  
 Arg Glu Asp Leu Ile Ala Tyr Asp Phe Asn Gly Gly Ile Arg Ile Ile  
 1605 1610 1615  
 Phe

&lt;210&gt;1036

&lt;211&gt;504

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1036

Gln Ser Ile Leu Glu Ser Ile Ile Lys Tyr Phe Tyr Leu Ile His Asn  
 1 5 10 15  
 Ser Lys Met His Met Ser Asn Pro Ile Ser Leu Phe Ser Pro Ala Glu  
 20 25 30  
 Leu Ile Ala Lys Tyr Asn Leu Ile Pro Lys Thr Ser Pro Ile Tyr Pro  
 35 40 45  
 Arg Arg Thr Glu Leu Ile Ile Leu Glu Glu Asn Ala Cys Gln Thr Arg  
 50 55 60  
 Leu Thr Asn Val Ala Gln Val Leu His Pro Ser Ser Leu Phe Ser Met  
 65 70 75 80  
 Ser Lys Lys Ile Leu Asn Pro Cys Gly Cys Ser Gly Gly Pro Leu Cys  
 85 90 95  
 Trp Val Ile Leu Asn Ile Leu Ala Phe Ile Ile Thr Ser Val Leu Phe  
 100 105 110  
 Ile Ile Leu Leu Pro Val Asn Leu Ile Val Ala Gly Leu Arg Leu Phe  
 115 120 125  
 Met Pro Leu Pro Pro Lys Lys Ile Val Glu Asp Leu Ser Glu Pro Thr  
 130 135 140  
 Thr Glu Glu Thr Asn Glu Val Ile Gln Pro Phe Ile Phe Ala Leu Gln  
 145 150 155 160  
 Ala Leu Leu Phe Glu Asp Asn Lys Leu Arg Ser Phe Lys Ile Val Glu  
 165 170 175  
 Gln Ser Val Gly Lys Ala Pro Leu Pro Asn Pro Phe Leu Asn Arg Leu  
 180 185 190  
 Val Ala Ile Ser Pro Gln Xaa Ser Gln Glu Ala Met Arg Lys Ile Pro  
 195 200 205  
 Asp Leu Cys Ser Gln Leu Lys Lys Val Leu Lys Ser Leu Gly Val Leu  
 210 215 220

Thr Pro Glu Trp Lys His Met Leu Lys Tyr Phe Glu Gly Leu Lys Asn  
 225 230 235 240  
 Glu His Asp Ser Asn Pro Asp Lys Lys Thr Phe Pro Ile Leu Ile Lys  
 245 250 255  
 Leu Leu Ile Glu Ala Leu Thr Gly Lys Ser Ser Leu Pro Lys Thr Pro  
 260 265 270  
 Ser Thr Lys Glu Lys Met Gln Ala Ala Leu Phe Ile Ala Ser Ser Cys  
 275 280 285  
 Lys Thr Cys Lys Pro Thr Trp Gly Glu Val Ile Thr Arg Ser Leu Asn  
 290 295 300  
 Arg Leu Tyr Ser Ile Ala Asn Glu Gly Asp Asn Gln Leu Leu Ile Trp  
 305 310 315 320  
 Val Gln Glu Phe Lys Glu Arg Glu Leu Met Ser Ile Gln Asp Gly Asp  
 325 330 335  
 Asp Ala Glu Glu Tyr Arg Phe Ala Ala Gln Gln His Gly Glu Arg Tyr  
 340 345 350  
 Thr Glu Ala Ile Glu Gln Val Leu Arg Asn Glu Ser Ala Ala Lys Leu  
 355 360 365  
 Gln Trp His Val Ile Asn Thr Met Lys Phe Phe His Gly Lys Asn Leu  
 370 375 380  
 Gly Leu Val Thr Glu His Leu Gln Asp Thr Leu Gly Ala Leu Thr Leu  
 385 390 395 400  
 Arg Gln Thr Thr Val Asp Thr His Gln Gly Arg Glu Asp Ala Asp Leu  
 405 410 415  
 Ser Ala Ala Leu Phe Leu Asn Lys Tyr Leu Asn Ser Gly Asn Gln Leu  
 420 425 430  
 Val Asn Ser Val Phe Lys Ser Met Gln Lys Ala Asp Pro Glu Thr Lys  
 435 440 445  
 Ala Leu Ile Arg Glu Phe Ala Leu Asp Ile Leu Tyr Ala Ser Leu Arg  
 450 455 460  
 Leu Pro Gln Thr Ser Ala His Thr Glu Val Phe Ser Thr Leu Leu Met  
 465 470 475 480  
 Asp Pro Glu Thr Tyr Glu Pro Asn Lys Ala Cys Ile Ala Tyr Leu Leu  
 485 490 495  
 Tyr Val Leu Lys Ile Ile Glu Leu  
 500

&lt;210&gt;1037

&lt;211&gt;615

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1037

Lys Gly Phe Ser Phe Ser Lys Val Gly Leu Asn Met Ile Pro Ser Gly  
 1 5 10 15  
 Leu Val Tyr Leu Leu Tyr Pro Leu Gly Phe Leu Ala Ser Leu Phe Phe  
 20 25 30  
 Gly Ser Ala Phe Ser Ile Gln Trp Trp Leu Ser Lys Lys Arg Lys Glu  
 35 40 45  
 Val Tyr Ala Pro Arg Ser Phe Trp Ile Leu Ser Ser Ile Gly Ala Thr  
 50 55 60  
 Leu Met Ile Val His Gly Thr Ile Gln Ser Gln Phe Pro Val Thr Val  
 65 70 75 80  
 Leu His Val Ile Asn Leu Ile Ile Tyr Leu Arg Asn Leu Asn Ile Thr  
 85 90 95  
 Ser Ser Arg Pro Ile Ser Phe Arg Ala Thr Leu Val Leu Met Ala Leu  
 100 105 110  
 Ser Val Val Phe Val Thr Leu Pro Phe Leu Tyr Val Asn Met Glu Trp  
 115 120 125  
 Met Ala Ser Pro Asn Ile Phe His Leu Pro Leu Pro Pro Ala Gln Leu  
 130 135 140  
 Ser Trp His Leu Ile Gly Cys Leu Gly Leu Ala Ile Phe Ser Gly Arg  
 145 150 155 160  
 Phe Leu Ile Gln Trp Phe Tyr Ile Glu Ser Asn Asn Thr Lys Asp Phe  
 165 170 175  
 Pro Leu Leu Phe Trp Lys Ile Gly Leu Leu Gly Gly Leu Leu Ala Leu

180 185 190  
 Val Tyr Phe Ile Arg Ile Gly Asp Pro Ile Asn Ile Leu Cys Tyr Gly  
 195 200 205  
 Cys Gly Leu Phe Pro Ser Ile Ala Asn Leu Arg Leu Phe Tyr Lys Glu  
 210 215 220  
 Gln Arg Ser Thr Pro Tyr Leu Asp Thr His Cys Phe Leu Ser Ala Gly  
 225 230 235 240  
 Glu Ala Ser Gly Asp Ile Leu Gly Gly Lys Leu Ile Gln Ser Ile Lys  
 245 250 255  
 Ser Leu Tyr Pro Asn Ile Arg Phe Trp Gly Val Gly Gly Pro Ala Met  
 260 265 270  
 Arg Gln Glu Gly Leu Gln Pro Ile Leu Asn Met Glu Glu Phe Gln Val  
 275 280 285  
 Ser Gly Phe Ala Glu Val Leu Gly Ser Leu Phe Arg Leu Tyr Arg Asn  
 290 295 300  
 Tyr Arg Lys Ile Leu Lys Thr Ile Leu Lys His Lys Pro Ala Thr Leu  
 305 310 315 320  
 Ile Phe Ile Asp Phe Pro Asp Phe His Leu Leu Leu Ile Lys Lys Leu  
 325 330 335  
 Arg Lys His Gly Tyr Arg Gly Lys Ile Ile His Tyr Val Cys Pro Ser  
 340 345 350  
 Ile Trp Ala Trp Arg Pro Lys Arg Lys Arg Ile Leu Glu Gln His Leu  
 355 360 365  
 Asp Met Leu Leu Leu Ile Leu Pro Phe Glu Glu Gly Leu Phe Lys Asn  
 370 375 380  
 Thr Ser Leu Glu Thr Val Tyr Leu Gly His Pro Leu Val Glu Glu Ile  
 385 390 395 400  
 Ser Asp Tyr Lys Glu Gln Ala Ser Trp Lys Glu Lys Phe Leu Asn Ser  
 405 410 415  
 Asp Arg Pro Ile Val Ala Ala Phe Pro Gly Ser Arg Arg Gly Asp Ile  
 420 425 430  
 Ser Arg Asn Leu Arg Ile Gln Val Gln Ala Phe Leu Asn Ser Ser Leu  
 435 440 445  
 Ser Gln Thr His Gln Phe Val Val Ser Ser Ser Ser Ala Lys Tyr Asp  
 450 455 460  
 Glu Ile Ile Glu Asp Thr Leu Lys Ala Glu Gly Cys Gln His Ser Gln  
 465 470 475 480  
 Ile Ile Pro Met Asn Phe Arg Tyr Glu Leu Met Arg Ser Cys Asp Cys  
 485 490 495  
 Ala Leu Ala Lys Cys Gly Thr Ile Val Leu Glu Thr Ala Leu Asn Gln  
 500 505 510  
 Thr Pro Thr Ile Val Met Cys Arg Leu Arg Pro Phe Asp Thr Phe Leu  
 515 520 525  
 Ala Lys Tyr Ile Phe Lys Ile Leu Leu Pro Ala Tyr Ser Leu Pro Asn  
 530 535 540  
 Ile Ile Met Asn Ser Val Ile Phe Pro Glu Phe Ile Gly Gly Lys Lys  
 545 550 555 560  
 Asp Phe His Pro Glu Glu Thr Ala Thr Ala Leu Asp Leu Leu Asn Gln  
 565 570 575  
 His Gly Ser Lys Glu Lys Gln Lys Glu Asp Cys Arg Lys Leu Cys Lys  
 580 585 590  
 Val Met Thr Thr Gly Gln Ile Ala Ser Glu Glu Phe Leu Lys Arg Ile  
 595 600 605  
 Phe Asp Thr Leu Pro Ala Val  
 610 615  
 <210>1038  
 <211>430  
 <212>PRT  
 <213>Chlamydia pneumoniae.  
 <400>1038  
 Met Val Cys Glu Asn Asn Ile Leu Ser Gly Arg Gly Leu Glu Leu Leu  
 1 5 10 15  
 Lys Lys Lys Ser Asn Ile Thr Leu Thr Pro Thr Ile Tyr Ser Val Ser  
 20 25 30

Asn His Asn Ile Lys Leu Lys Asp Phe Ser Pro His Ala Leu Ser Val  
 35 40 45  
 Ile Lys Thr Leu Arg Lys Ala Gly Tyr Ile Ala Tyr Ile Val Gly Gly  
 50 55 60  
 Cys Ile Arg Asp Leu Leu Leu Asn Thr Thr Pro Lys Asp Phe Asp Ile  
 65 70 75 80  
 Ser Thr Ser Ala Lys Pro Glu Glu Ile Lys Ala Ile Phe Lys Asn Cys  
 85 90 95  
 Ile Leu Val Gly Lys Arg Phe Arg Leu Ala His Ile Arg Phe Ser Lys  
 100 105 110  
 Gln Ile Ile Glu Val Ser Thr Phe Arg Ser Gly Ser Thr Asp Glu Asp  
 115 120 125  
 Val Leu Ile Thr Lys Asp Asn Leu Trp Gly Thr Pro Glu Glu Asp Val  
 130 135 140  
 Leu Arg Arg Asp Phe Thr Ile Asn Gly Leu Phe Tyr Asp Pro Glu His  
 145 150 155 160  
 Glu Glu Ile Ile Asp Tyr Thr Gly Gly Val Asn Asp Leu Arg Asn Arg  
 165 170 175  
 Tyr Leu Arg Thr Ile Gly Asp Pro Phe Thr Arg Phe Lys Gln Asp Pro  
 180 185 190  
 Val Arg Met Leu Arg Leu Leu Lys Ile Leu Ser Arg Ser Pro Phe Thr  
 195 200 205  
 Val Glu Thr Gln Thr Gln Glu Ala Leu Ile Ala Cys Arg Gln Glu Leu  
 210 215 220  
 Ile Lys Ser Ser Arg Ala Arg Val Phe Glu Glu Leu Ile Lys Met Leu  
 225 230 235 240  
 Asn Ser Gly Ala Ala Lys Asn Phe Phe Gln Leu Leu Ile Glu Asn His  
 245 250 255  
 Leu Leu Glu Ile Leu Phe Pro Tyr Met Asp Lys Ala Phe Arg Leu Asn  
 260 265 270  
 Arg Ala Leu Glu Glu Gln Thr Ala Thr Tyr Leu Lys Ala Leu Asp Asp  
 275 280 285  
 Lys Ile Leu Lys Lys Glu Ala Glu Tyr Asp Arg His Gln Leu Met Ala  
 290 295 300  
 Ile Phe Leu Phe Pro Leu Val Asn Phe Asn Val Arg Tyr Lys His Gln  
 305 310 315 320  
 Lys His Pro Tyr Leu Ser Leu Thr Ser Val Phe Asp Tyr Ile Lys Asn  
 325 330 335  
 Phe Leu Glu Gln Phe Phe Ala Asp Ser Phe Thr Ser Cys Ser Lys Lys  
 340 345 350  
 Asn Phe Ile Leu Thr Ala Leu Ile Leu Gln Met Gln Tyr Arg Leu Thr  
 355 360 365  
 Pro Leu Ile Pro Thr Lys Lys Ala Leu Phe Phe Asn Lys Lys Leu Leu  
 370 375 380  
 His His Thr Arg Phe Leu Glu Ala Leu Ser Leu Leu Glu Ile Arg Ser  
 385 390 395 400  
 Ile Val Tyr Pro Lys Leu Asp Lys Val Tyr Val Ala Trp Ile Arg His  
 405 410 415  
 His Gln Thr Leu Lys Cys Lys Lys Asp Ser His Ser Gln Lys  
 420 425 430

&lt;210&gt;1039

&lt;211&gt;395

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1039

Glu Arg Ile Asp Cys Trp Leu Asn Ser Met Gly Ile Glu Thr Leu Val  
 1 5 10 15  
 Leu Gly Pro Ile Pro Thr Pro Gly Val Ala Phe Ile Thr Arg Ala Tyr  
 20 25 30  
 Arg Ala Asp Ala Gly Ile Met Ile Ser Ala Ser His Asn Pro Tyr Arg  
 35 40 45  
 Asp Asn Gly Ile Lys Ile Phe Ser Leu Glu Gly Phe Lys Ile Ser Asp  
 50 55 60  
 Val Leu Glu Gln Arg Ile Glu Thr Met Val Ser Glu Ala Asp Phe Gly

65 70 75 80  
 Pro Leu Pro Glu Asp His Ala Val Gly Lys Asn Lys Arg Val Ile Asp  
 85 90 95  
 Ala Met Gly Arg Tyr Val Glu Phe Val Lys Ala Thr Phe Pro Lys Gly  
 100 105 110  
 Arg Thr Leu Lys Gly Leu Lys Ile Val Leu Asp Cys Ala His Gly Ala  
 115 120 125  
 Ser Tyr Lys Val Ala Pro Ser Val Phe Glu Glu Leu Asp Ala Glu Val  
 130 135 140  
 Ile Cys Tyr Gly Cys Glu Pro Thr Gly Ile Asn Ile Asn Glu His Cys  
 145 150 155 160  
 Gly Ala Leu Phe Pro Gln Val Ile Gln Lys Ala Val Ile Glu His Gln  
 165 170 175  
 Ala His Leu Gly Ile Ala Leu Asp Gly Asp Gly Asp Arg Ile Ile Met  
 180 185 190  
 Val Asp Glu Lys Gly His Ile Val Asp Gly Asp Met Ile Leu Ser Ile  
 195 200 205  
 Cys Ala Gly Asp Leu Lys Lys Arg Ser Ala Leu Pro His Asn Arg Val  
 210 215 220  
 Val Ala Thr Ile Met Thr Asn Phe Gly Val Leu Lys Tyr Leu Glu Gly  
 225 230 235 240  
 Leu Gly Leu Gln Val Phe Thr Ser Pro Val Gly Asp Arg His Val Leu  
 245 250 255  
 His Ala Met Leu Glu His Glu Val Thr Xaa Gly Gly Glu Gln Ser Gly  
 260 265 270  
 His Met Ile Phe Leu Asp Tyr Asn Thr Thr Gly Asp Gly Ile Val Ser  
 275 280 285  
 Ala Leu Gln Val Leu Arg Ile Met Ile Glu Ser Glu Ser Met Leu Ser  
 290 295 300  
 Asp Leu Thr Ala Pro Ile Val Lys Ser Pro Gln Thr Leu Ile Asn Val  
 305 310 315 320  
 Ala Val Arg Glu Lys Ile Pro Leu Glu Thr Ile Pro Leu Ile Glu Arg  
 325 330 335  
 Thr Leu Arg Asp Val Gln Asp Ala Leu Gly Pro Ser Gly Arg Ile Leu  
 340 345 350  
 Leu Arg Tyr Ser Gly Thr Glu Asn Ile Cys Arg Val Met Val Glu Gly  
 355 360 365  
 His Lys Lys His Gln Val Asp Cys Leu Ala Lys Ala Leu Ala Asp Val  
 370 375 380  
 Ile Asp Ala Glu Leu Gly Thr Gly Ser Arg Glu  
 385 390 395  
 <210>1040  
 <211>161  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1040  
 Met Cys Gly Ile Phe Gly Tyr Leu Gly Asn Gln Asp Gly Val Ser Ile  
 1 5 10 15  
 Val Leu Glu Gly Leu Ala Lys Leu Glu Tyr Arg Gly Tyr Asp Ser Ala  
 20 25 30  
 Gly Leu Ala Ala Val Val Glu Gln Glu Leu Phe Ile Arg Lys Thr Val  
 35 40 45  
 Gly Arg Val Gln Glu Leu Ser Asn Leu Phe Gln Glu Arg Glu Ile Pro  
 50 55 60  
 Thr Ala Ser Val Ile Gly His Thr Arg Trp Ala Thr His Gly Val Pro  
 65 70 75 80  
 Thr Glu Ile Asn Ala His Pro His Val Asp Glu Gly Arg Ser Cys Ala  
 85 90 95  
 Val Val His Asn Gly Ile Ile Glu Asn Phe Lys Glu Leu Arg Arg Glu  
 100 105 110  
 Leu Thr Ala Gln Gly Ile Ser Phe Ala Ser Asp Thr Asp Ser Glu Ile  
 115 120 125  
 Ile Val Gln Leu Phe Ser Leu Tyr Tyr Gln Glu Ser Gln Asp Leu Val  
 130 135 140

Phe Ser Phe Cys Gln Thr Leu Ala Gln Leu Arg Gly Ser Val Ala Ala  
 145 150 155 160  
 Leu

&lt;210&gt;1041

&lt;211&gt;307

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1041

Arg Ser Cys Ala Leu Ile His Lys Asp His Pro His Thr Ile Leu Cys  
 1 5 10 15  
 Ala Ser Gln Glu Ser Pro Leu Ile Leu Gly Leu Gly Lys Glu Glu Thr  
 20 25 30  
 Phe Ile Ala Ser Asp Ser Arg Ala Phe Phe Lys Tyr Thr Arg His Ser  
 35 40 45  
 Gln Ala Leu Ala Ser Gly Glu Phe Ala Ile Val Ser Gln Gly Lys Glu  
 50 55 60  
 Pro Glu Val Tyr Asn Leu Glu Leu Lys Lys Ile His Lys Asp Val Arg  
 65 70 75 80  
 Gln Ile Thr Cys Ser Glu Asp Ala Ser Asp Lys Ser Gly Tyr Gly Tyr  
 85 90 95  
 Tyr Met Leu Lys Glu Ile Tyr Asp Gln Pro Glu Val Leu Glu Gly Leu  
 100 105 110  
 Ile Gln Lys His Met Asp Glu Glu Gly His Ile Leu Ser Glu Phe Leu  
 115 120 125  
 Ser Asp Val Pro Ile Lys Ser Phe Lys Glu Ile Thr Ile Val Ala Cys  
 130 135 140  
 Gly Ser Ser Tyr His Ala Gly Tyr Leu Ala Lys Tyr Ile Ile Glu Ser  
 145 150 155 160  
 Leu Val Ser Ile Pro Val His Ile Glu Val Ala Ser Glu Phe Arg Tyr  
 165 170 175  
 Arg Arg Pro Tyr Ile Gly Lys Asp Thr Leu Gly Ile Leu Ile Ser Gln  
 180 185 190  
 Ser Gly Glu Thr Ala Asp Thr Leu Ala Ala Leu Lys Glu Leu Arg Arg  
 195 200 205  
 Arg Asn Ile Ala Tyr Leu Leu Gly Ile Cys Asn Val Pro Glu Ser Ala  
 210 215 220  
 Ile Ala Leu Gly Val Asp His Cys Leu Phe Leu Glu Ala Gly Val Glu  
 225 230 235 240  
 Ile Gly Val Ala Thr Thr Lys Ala Phe Thr Ser Gln Leu Leu Leu Leu  
 245 250 255  
 Val Phe Leu Gly Leu Lys Leu Ala Asn Val His Gly Ala Leu Thr His  
 260 265 270  
 Ala Glu Gln Cys Ser Phe Gly Gln Gly Leu Gln Ser Leu Pro Asp Leu  
 275 280 285  
 Cys Gln Lys Leu Leu Ala Gln Arg Val Ser Pro Phe Leu Gly Ala Ala  
 290 295 300  
 Leu Leu Leu  
 305

&lt;210&gt;1042

&lt;211&gt;182

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1042

Leu Thr Gln Asn Asn Val Pro Leu Ala Arg Asp Tyr Lys Ala Tyr Gln  
 1 5 10 15  
 Ile Ser Val Lys Asn Phe Leu Pro Asn Glu Ser Leu His Ser Trp Ala  
 20 25 30  
 Gln Pro Tyr Ser Tyr Glu Asp Lys Phe Leu Phe Leu Gly Arg Arg Leu  
 35 40 45  
 Met Tyr Pro Val Val Met Glu Ala Ala Leu Lys Leu Lys Glu Ile Ala  
 50 55 60  
 Tyr Ile Glu Ala Asn Ala Tyr Pro Gly Gly Glu Met Lys His Gly Pro  
 65 70 75 80



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<210>1043
<211>259
<212>PRT
<213>Chlamydia pneumoniae
<400>1043
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<210>1044
<211>241
<212>PRT
<213>Chlamydia pneumoniae
<400>1044
```

1063

Tyr Arg Ser Leu Phe Ser Phe Trp Trp Val Trp Cys Phe Ala Thr Leu  
 50 55 60  
 Gly Val Ser Phe Phe Ile Asn Ser Lys Ile Gln Thr Leu Ser Val Ser  
 65 70 75 80  
 Ala Val Gly Gly Leu Phe Leu Leu Tyr Ser Thr Leu Glu Gly Met Phe  
 85 90 95  
 Phe Gly Thr Leu Leu Pro Val Tyr Ala Ala Gln Tyr Gly Gly Gly Val  
 100 105 110  
 Ile Trp Ala Ala Phe Gly Ser Ala Ala Leu Val Phe Gly Leu Ala Ala  
 115 120 125  
 Val Tyr Gly Ala Phe Thr Lys Ser Asp Leu Thr Lys Ile Ser Lys Ile  
 130 135 140  
 Met Thr Phe Ala Leu Ile Gly Leu Leu Leu Val Thr Leu Val Phe Ala  
 145 150 155 160  
 Val Val Ser Met Phe Val Ser Met Pro Leu Ile Tyr Leu Leu Ile Cys  
 165 170 175  
 Tyr Leu Gly Leu Val Ile Phe Val Gly Leu Thr Ala Ala Asp Ala Gln  
 180 185 190  
 Ala Ile Arg Arg Ile Ser Ser Thr Ile Gly Asp Asn Asn Thr Leu Ser  
 195 200 205  
 Tyr Lys Leu Ser Leu Met Phe Ala Leu Lys Met Tyr Cys Asn Val Ile  
 210 215 220  
 Met Val Phe Trp Tyr Leu Leu Gln Ile Phe Ser Ser Ser Gly Asn Arg  
 225 230 235 240  
 Asp

&lt;210&gt;1045

&lt;211&gt;316

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1045

Arg Cys Ile Asn Asn Ser Leu Leu Phe Pro Ser Tyr Leu Val Ser Phe  
 1 5 10 15  
 Leu Leu Leu Gln Leu Thr Leu Leu Leu Ala Met Phe Lys Phe Phe Arg  
 20 25 30  
 Asn Lys Leu Gln Ser Leu Phe Lys Lys Asn Ile Ser Leu Asp Leu Ile  
 35 40 45  
 Glu Asp Ala Glu Ser Leu Phe Tyr Glu Ala Asp Phe Gly Thr Glu Leu  
 50 55 60  
 Thr Glu Glu Leu Cys Ala Arg Leu Arg Arg Thr Lys Lys Ala Asp Ala  
 65 70 75 80  
 Ser Thr Ile Lys Asp Leu Ile Thr Val Leu Leu Arg Glu Ser Leu Glu  
 85 90 95  
 Gly Leu Pro Ser Gln Ala Ser Gln Ser Ser Gln Thr Arg Pro Ile Val  
 100 105 110  
 Ser Leu Leu Leu Gly Thr Asn Gly Ser Gly Lys Thr Thr Thr Ala Ala  
 115 120 125  
 Lys Leu Ala His Tyr Tyr Lys Glu Arg Ser Glu Ser Val Met Leu Val  
 130 135 140  
 Ala Thr Asp Thr Phe Arg Ala Ala Gly Met Asp Gln Ala Arg Leu Trp  
 145 150 155 160  
 Ala Asn Glu Leu Gly Cys Gly Phe Val Ser Gly Gln Pro Gly Gly Asp  
 165 170 175  
 Ala Ala Ala Ile Ala Phe Asp Gly Ile Gln Ser Ala Ile Ala Arg Gly  
 180 185 190  
 Tyr Ser Arg Val Ile Ile Asp Thr Ser Gly Arg Leu His Val His Gly  
 195 200 205  
 Asn Leu Met Lys Glu Leu Ser Lys Ile Val Ser Val Cys Gly Lys Ala  
 210 215 220  
 Leu Glu Gly Ala Pro His Glu Ile Phe Met Thr Val Asp Ser Thr Leu  
 225 230 235 240  
 Gly Asn Asn Ala Ile Glu Gln Val Arg Val Phe His Asp Val Val Pro  
 245 250 255  
 Leu Ser Gly Leu Ile Phe Thr Lys Val Asp Gly Ser Ala Lys Gly Gly

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                260                265                270
Thr Leu Phe Gln Ile Ala Lys Arg Leu Lys Ile Pro Thr Lys Phe Ile
                275                280                285
Gly Tyr Gly Glu Ser Leu Lys Asp Leu Asn Glu Phe Asp Leu Asp Leu
                290                295                300
Phe Leu Asn Lys Leu Phe Pro Glu Val Glu Lys Ile
305                310                315
<210>1046
<211>386
<212>PRT
<213>Chlamydia pneumoniae
<400>1046
Met His Leu His Glu Tyr Gln Ala Lys Asp Leu Leu Ala Ser Tyr Asp
  1                5                10                15
Val Pro Ile Pro Pro Tyr Trp Val Val Ser Ser Glu Glu Glu Gly Glu
                20                25                30
Leu Leu Ile Thr Lys Ser Gly Leu Asp Ser Ala Val Val Lys Val Gln
                35                40                45
Val His Ala Gly Gly Arg Gly Lys His Gly Gly Val Ile Val Ala Lys
  50                55                60
Ser Ser Ala Gly Ile Leu Gln Ala Val Ala Lys Leu Leu Gly Met His
  65                70                75                80
Phe Thr Ser Asn Gln Thr Ala Asp Gly Phe Leu Pro Val Glu Lys Val
                85                90                95
Leu Ile Ser Pro Leu Val Ala Ile Gln Arg Glu Tyr Tyr Val Ala Val
                100                105                110
Ile Met Asp Arg Lys His Arg Cys Pro Val Leu Met Leu Ser Lys Ala
                115                120                125
Gly Gly Met Asp Ile Glu Glu Val Ala His Ser Ser Pro Glu Gln Ile
                130                135                140
Leu Thr Leu Pro Leu Thr Ser Tyr Gly His Ile Tyr Ser Tyr Gln Leu
  145                150                155                160
Arg Gln Ala Thr Lys Phe Met Glu Trp Glu Gly Glu Val Met His Gln
                165                170                175
Gly Val Gln Leu Ile Lys Lys Leu Ala Lys Cys Phe Tyr Glu Asn Asp
                180                185                190
Val Ser Leu Leu Glu Ile Asn Pro Leu Val Leu Thr Leu Glu Gly Glu
                195                200                205
Leu Leu Val Leu Asp Ser Lys Ile Thr Ile Asp Asp Asn Ala Leu Tyr
                210                215                220
Arg His Pro Asn Leu Glu Val Leu Tyr Asp Pro Ser Gln Glu Asn Val
  225                230                235                240
Arg Asp Val Leu Ala Lys Gln Ile Gly Leu Ser Tyr Ile Ala Leu Ser
                245                250                255
Gly Asn Ile Gly Cys Ile Val Asn Gly Ala Gly Leu Ala Met Ser Thr
                260                265                270
Leu Asp Ile Leu Lys Leu His Gly Gly Asn Ala Ala Asn Phe Leu Asp
                275                280                285
Val Gly Gly Gly Ala Ser Gln Lys Gln Ile Gln Glu Ala Val Ser Leu
  290                295                300
Val Leu Ser Asp Glu Ser Val Lys Val Leu Phe Ile Asn Ile Phe Gly
  305                310                315                320
Xaa Ile Met Asp Cys Ser Val Val Ala Ser Gly Leu Val Ala Val Met
                325                330                335
Glu Thr Arg Asp Gln Val Val Pro Thr Val Ile Arg Leu Glu Gly Thr
                340                345                350
Asn Val Glu Leu Gly Lys Glu Ile Val Gln Gln Ser Gly Ile Pro Cys
                355                360                365
Gln Phe Val Ser Ser Met Glu Glu Gly Ala Arg Arg Ala Val Glu Leu
  370                375                380
Ser Met
385
<210>1047
<211>300

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&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1047

Val Cys Arg Phe Arg Arg Tyr Met Phe His Ser Leu Ser Lys Asn Thr  
 1 5 10 15  
 Pro Ile Ile Thr Gln Gly Ile Thr Gly Lys Ala Gly Ser Phe His Thr  
 20 25 30  
 Glu Gln Cys Leu Ala Tyr Gly Thr Asn Phe Val Gly Gly Val Thr Pro  
 35 40 45  
 Gly Lys Gly Gly Thr Leu Trp Leu Asp Leu Pro Val Tyr Asp Ser Val  
 50 55 60  
 Leu Glu Ala Lys Gln Ala Thr Gly Cys Arg Ala Thr Met Ile Phe Val  
 65 70 75 80  
 Pro Pro Pro Tyr Ala Ala Glu Ala Ile Leu Glu Ala Glu Glu Ala Gly  
 85 90 95  
 Ile Glu Leu Ile Val Cys Ile Thr Glu Gly Ile Pro Val Arg Asp Met  
 100 105 110  
 Leu Glu Val Ala Arg Val Met Asp Asn Ser Thr Ser Gln Leu Ile Gly  
 115 120 125  
 Pro Asn Cys Pro Gly Ile Ile Lys Pro Gly Glu Cys Lys Ile Gly Ile  
 130 135 140  
 Met Pro Gly Tyr Ile His Leu Pro Gly Asn Ile Gly Val Val Ser Arg  
 145 150 155 160  
 Ser Gly Thr Leu Thr Tyr Glu Ala Val Trp Gln Leu Thr Gln Leu Lys  
 165 170 175  
 Ile Gly Gln Ser Ile Cys Val Gly Ile Gly Gly Asp Pro Leu Asn Gly  
 180 185 190  
 Thr Ser Phe Ile Asp Val Leu Gln Ala Leu Glu Glu Asp Pro Tyr Thr  
 195 200 205  
 Glu Leu Ile Leu Met Ile Gly Glu Ile Gly Gly Ser Ala Glu Glu Glu  
 210 215 220  
 Ala Ala Ala Trp Ile Gln Ala His Cys Thr Lys Pro Val Val Ala Phe  
 225 230 235 240  
 Ile Ala Gly Val Thr Ala Pro Lys Gly Lys Arg Met Gly His Ala Gly  
 245 250 255  
 Ala Ile Ile Ser Gly Asn Ser Gly Asp Ala Lys Ser Lys Ile Gln Val  
 260 265 270  
 Leu Arg Glu Ser Gly Val Thr Val Val Glu Ser Pro Ala His Ile Gly  
 275 280 285  
 Lys Thr Val Asp Ala Val Leu Arg Ala Lys Glu Leu  
 290 295 300

&lt;210&gt;1048

&lt;211&gt;369

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1048

Ile Leu Met Leu Val Tyr Cys Phe Asp Pro Ser Val Pro Thr Ser Pro  
 1 5 10 15  
 Glu His Arg Leu Met Ala Ala Leu Asp Arg Trp Phe Phe Leu Gly Gly  
 20 25 30  
 His Arg Val Arg Ile Leu Thr Leu Glu Gly Asn His Tyr Arg Ala Phe  
 35 40 45  
 Gln Glu Asn Met Ser Ile Ser Thr Val Glu Lys Ile Leu Lys Leu Ile  
 50 55 60  
 Ser Tyr Leu Leu Ile Pro Ile Val Leu Ile Ala Leu Leu Ile Arg Cys  
 65 70 75 80  
 Phe Leu His Ser Arg Phe Lys Cys Asn Trp Lys Cys Asp Ser Leu Ser  
 85 90 95  
 Asp Ala Arg Val Pro His Asp Val Gln Pro Phe Asn Asp Phe Gln Leu  
 100 105 110  
 Phe Asn Asn Gln Glu Arg Leu Asn Ile Trp Lys Asn Arg Arg Tyr Val  
 115 120 125  
 Ser Gly Ile Asp Val Leu Met Val Pro Val Asp Tyr Leu Arg Ser Gln  
 130 135 140

Phe Pro Gly Phe Lys Glu Ile Pro Glu Ala Ile Arg Cys Glu Asn Tyr  
 145 150 155 160  
 Val Ser Asp Gly Gln Phe Ser Glu Glu Ser Lys Thr Ser Tyr Leu Arg  
 165 170 175  
 Ala Met Leu Thr Asp Ile Val Gly Tyr Ile Leu Ser Leu Asp Glu Thr  
 180 185 190  
 Tyr Trp Thr Asn Val Ile Leu Lys Ile Arg Ala Met Cys Ile Thr Phe  
 195 200 205  
 Glu Ser Phe Pro Gly Lys Glu Ala Asp Pro Asn Tyr Ser Pro Arg Val  
 210 215 220  
 Thr His His Tyr Phe Asp Glu Ser Trp Lys Ala Leu Ala Arg His Val  
 225 230 235 240  
 Leu Gly Glu Gly Asn Met Val Asn Arg Leu Asp Glu Ala Leu Ile Arg  
 245 250 255  
 Thr Glu Lys Pro Gly Lys Glu Gly Glu Cys Ile Thr Lys Gln Phe Leu  
 260 265 270  
 Lys Asp Tyr Cys Lys Lys His Leu Glu Val Met Ser Cys Pro Asp Phe  
 275 280 285  
 Ile Glu Ser Leu Val Asp Glu Lys Ile Arg Glu Phe Arg Cys Pro Ser  
 290 295 300  
 Ile Leu Asn Ser Ala Val Cys Asp Val Ile Asp Arg Lys Cys Gln Glu  
 305 310 315 320  
 His Leu Leu Lys Ala Ile Ile Asn Glu Ala Asn Arg Arg Leu Pro Gly  
 325 330 335  
 Met Lys Asn Ser Ser Phe Thr Met Arg Gly Asn Gln Val Leu Phe Tyr  
 340 345 350  
 Thr Ile Phe Ser Pro Pro Lys Leu Pro Pro Ala Ala Ser Ser Val Tyr  
 355 360 365  
 Phe

&lt;210&gt;1049

&lt;211&gt;358

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1049

Leu Tyr Ile Asn Gln Phe Ala Asn Ile Leu Lys Ser Ser Phe Leu Met  
 1 5 10 15  
 Glu Val Tyr Ser Phe Ser Pro Ser Val Arg Thr Ser Phe Gln His Arg  
 20 25 30  
 Val Met Ala Ala Leu Asp Asn Trp Phe Phe Leu Gly Gly Arg Arg Leu  
 35 40 45  
 Lys Val Val Ser Leu Asp Ser Cys Asn Ser Gly Gln Ala Cys Glu Glu  
 50 55 60  
 Tyr Val Pro Ile Ser Thr Thr Glu Lys Val Leu Lys Ile Leu Ser Tyr  
 65 70 75 80  
 Leu Leu Ile Pro Ile Val Ile Ile Ala Leu Leu Ile Arg Tyr Leu Leu  
 85 90 95  
 His Ser Asn Phe Thr Ala Lys Val Ser Gln Lys Pro Trp Leu Lys Thr  
 100 105 110  
 Leu Gln Leu Gly Ile Asp Ile Lys Ser Phe Ile Leu Pro Gly Ser His  
 115 120 125  
 Val Asn Thr Met Asp Ser Ala Thr Leu Phe Lys Ala Ile Arg Leu Glu  
 130 135 140  
 Gly Lys Arg Val Asp Val Glu Tyr His Arg Leu His Ser Ser Asp Lys  
 145 150 155 160  
 Val Val Phe Tyr Ile Pro Ala Gln Lys Leu Pro Asp Asp Leu Arg Leu  
 165 170 175  
 Thr His Trp Leu Pro Glu Lys Glu Thr Arg Lys Thr Glu Tyr Val Arg  
 180 185 190  
 His Met Leu Ala His Val Met Gly Tyr Leu Thr Ser Gln Gly Lys Glu  
 195 200 205  
 Arg Leu Gln Gln Val Val Gln Asp Ser Arg Ser Ser Thr Ser Leu Gly  
 210 215 220  
 Ala Glu Lys Val Leu Gln Tyr Arg Phe Ile Asp His Pro Gln Ser Gln

1068

Arg Ser

&lt;210&gt;1051

&lt;211&gt;245

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1051

Gly Ile Asp Met Ile Thr Lys Gln Leu Arg Ser Trp Leu Ala Val Leu  
 1 5 10 15  
 Val Gly Ser Ser Leu Leu Ala Leu Pro Leu Ser Gly Gln Ala Val Gly  
 20 25 30  
 Lys Lys Glu Ser Arg Val Ser Glu Leu Pro Gln Asp Val Leu Leu Lys  
 35 40 45  
 Glu Ile Ser Gly Gly Phe Ser Lys Val Ala Thr Lys Ala Thr Pro Ala  
 50 55 60  
 Val Val Tyr Ile Glu Ser Phe Pro Lys Ser Gln Ala Val Thr His Pro  
 65 70 75 80  
 Ser Pro Gly Arg Arg Gly Pro Tyr Glu Asn Pro Phe Asp Tyr Phe Asn  
 85 90 95  
 Asp Glu Phe Phe Asn Arg Phe Phe Gly Leu Pro Ser Gln Arg Glu Lys  
 100 105 110  
 Pro Gln Ser Lys Glu Ala Val Arg Gly Thr Gly Phe Leu Val Ser Pro  
 115 120 125  
 Asp Gly Tyr Ile Val Thr Asn Asn His Val Val Glu Asp Thr Gly Lys  
 130 135 140  
 Ile His Val Thr Leu His Asp Gly Gln Lys Tyr Pro Ala Thr Val Ile  
 145 150 155 160  
 Gly Leu Asp Pro Lys Thr Asp Leu Ala Val Ile Lys Ile Lys Ser Gln  
 165 170 175  
 Asn Leu Pro Tyr Leu Ser Phe Gly Asn Ser Asp His Leu Lys Val Gly  
 180 185 190  
 Asp Trp Ala Ile Ala Ile Gly Asn Pro Phe Gly Leu Gln Ala Thr Val  
 195 200 205  
 Thr Val Val Ser Ser Val Leu Lys Glu Glu Ile Asn Ser Thr Leu Gln  
 210 215 220  
 Ile Leu Lys Ile Leu Phe Arg Gln Met Leu Arg Leu Ile Gln Ala Thr  
 225 230 235 240  
 Leu Glu Ala Leu Phe  
 245

&lt;210&gt;1052

&lt;211&gt;317

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1052

Ile Pro Lys Pro Pro Val Ser Phe Phe Trp Lys Leu Arg Pro Leu Lys  
 1 5 10 15  
 Ser Arg Arg Leu Gly Asn Cys Asn Trp Lys Ser Leu Arg Ser Ser Ser  
 20 25 30  
 Tyr Gly His Arg Ser Val Ile Ser Ala Lys Gly Arg Asn Gln Leu His  
 35 40 45  
 Ile Ala Asp Phe Glu Asp Phe Ile Gln Thr Asp Ala Ala Ile Asn Pro  
 50 55 60  
 Gly Asn Ser Gly Gly Pro Leu Leu Asn Ile Asp Gly Gln Val Ile Gly  
 65 70 75 80  
 Val Asn Thr Ala Ile Val Ser Gly Ser Gly Gly Tyr Ile Gly Ile Gly  
 85 90 95  
 Phe Ala Ile Pro Ser Leu Met Ala Asn Arg Ile Ile Asp Gln Leu Ile  
 100 105 110  
 Arg Asp Gly Gln Val Thr Arg Gly Phe Leu Gly Val Thr Leu Gln Pro  
 115 120 125  
 Ile Asp Ala Glu Leu Ala Ala Cys Tyr Lys Leu Glu Lys Val Tyr Gly  
 130 135 140  
 Ala Leu Val Thr Asp Val Val Lys Gly Ser Pro Ala Asp Lys Ala Gly  
 145 150 155 160

Leu Lys Gln Glu Asp Val Ile Ile Ala Tyr Asn Gly Lys Glu Val Asp  
 165 170 175  
 Ser Leu Ser Met Phe Arg Asn Ala Val Ser Leu Met Asn Pro Asp Thr  
 180 185 190  
 Arg Ile Val Leu Lys Val Val Arg Glu Gly Lys Val Ile Glu Ile Pro  
 195 200 205  
 Val Thr Val Ser Gln Ala Pro Lys Glu Asp Gly Met Ser Ala Leu Gln  
 210 215 220  
 Arg Val Gly Ile Arg Val Gln Asn Leu Thr Pro Glu Thr Ala Lys Lys  
 225 230 235 240  
 Leu Gly Ile Ala Pro Glu Thr Lys Gly Ile Leu Ile Ile Ser Val Glu  
 245 250 255  
 Pro Gly Ser Val Ala Ala Ser Ser Gly Ile Ala Pro Gly Gln Leu Ile  
 260 265 270  
 Leu Ala Val Asn Arg Gln Lys Val Ser Ser Ile Glu Asp Leu Asn Arg  
 275 280 285  
 Thr Leu Lys Asp Ser Asn Asn Glu Asn Ile Leu Leu Met Val Ser Gln  
 290 295 300  
 Gly Asp Val Ile Arg Phe Ile Ala Leu Lys Pro Glu Glu  
 305 310 315

&lt;210&gt;1053

&lt;211&gt;104

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1053

Arg Phe Ser Tyr Glu Ile Leu Pro Gly Gly Ser Arg Gly Trp Arg Ser  
 1 5 10 15  
 Ser Ala Asn Leu Pro Ile Val Lys Val Leu Gln Glu Ile Tyr Ser Asp  
 20 25 30  
 Leu Tyr Asn Glu Glu Cys Leu Arg Leu Val Met Pro Ala Thr Ile Pro  
 35 40 45  
 Ile Gly Pro Leu Leu Gly Glu Ala Ala Gln Thr Ser Pro Ile Ile Cys  
 50 55 60  
 Gly Thr Ser Tyr Leu Ser Asp Asp Ile His Ala Ala Glu Glu His Phe  
 65 70 75 80  
 Ser Met Asp Gln Leu Lys Lys Gly Phe Leu Ser Ile Cys Gln Leu Leu  
 85 90 95  
 Asp Lys Leu Pro Lys Ile Lys Glu  
 100

&lt;210&gt;1054

&lt;211&gt;393

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1054

Met Leu Asn His Ala Lys Lys His Ala Lys Pro Tyr Val Leu Ile Phe  
 1 5 10 15  
 Phe Ser Thr Lys Asp Lys Leu Ser Tyr Cys Asp Ile Ile Phe Asn Asn  
 20 25 30  
 Cys Ser Gly Lys Pro Met Asn Leu Asp Ser Lys His Phe Asp Ile Asn  
 35 40 45  
 Ser Ala Asn Phe Leu Glu Glu Phe Ala Lys Phe Ile Ser Phe Pro Ser  
 50 55 60  
 Ile Ser Ala Asp Ser Asp His Leu Gln Asp Cys Glu Asn Cys Ala His  
 65 70 75 80  
 Phe Leu Val Asp His Val Asn Lys Ile Phe Asp Val Glu Leu Trp Glu  
 85 90 95  
 Thr Pro Gly His Pro Pro Ile Ile Tyr Ala Ser Tyr Lys Ser Glu Asp  
 100 105 110  
 Pro Leu Ser Pro Thr Leu Met Leu Tyr Asn His Tyr Asp Val Gln Pro  
 115 120 125  
 Ala Gln Leu Ser Asp Gly Trp Lys Gly Asp Pro Phe Ile Leu Arg Glu  
 130 135 140  
 Glu Asn Gly Asn Leu Tyr Ala Arg Gly Ala Ser Asp Asn Lys Gly Gln  
 145 150 155 160



Cys Phe Tyr Thr Leu Lys Ala Leu Gln His Tyr Tyr Glu Ser Gln Gly  
 165 170 175  
 Asn Phe Pro Leu Asn Ile Ile Trp Leu Ile Glu Gly Glu Glu Ser  
 180 185 190  
 Gly Ser Leu Ala Leu Phe Thr Trp Leu Glu Lys Lys Lys Glu Ala Leu  
 195 200 205  
 Arg Ala Asp Tyr Leu Leu Ile Val Asp Gly Gly Phe Leu Ser Glu Lys  
 210 215 220  
 His Pro Tyr Val Ser Ile Gly Ala Arg Gly Ile Val Ser Met Lys Ile  
 225 230 235 240  
 Ser Leu Glu Glu Gly Asn Lys Asp Met His Ser Gly Val Leu Gly Gly  
 245 250 255  
 Ile Ala Tyr Asn Thr Asn Arg Ala Leu Ser Glu Ile Leu Ser Ser Leu  
 260 265 270  
 His His Pro Asp Asn Ser Ile Ala Ile Glu Gly Phe Tyr Asp Asp Leu  
 275 280 285  
 Ala Leu Pro Ser Asp Ser Asp Arg Pro Asp Leu Pro Lys Ser Asp Thr  
 290 295 300  
 Leu Arg Glu Cys Glu Glu Asn Leu Gly Phe Arg Pro Gln Gly Tyr Glu  
 305 310 315 320  
 Ala Ser Tyr Ser Pro Glu Glu Ser Ala Leu Arg Pro Thr Val Glu Ile  
 325 330 335  
 Asn Gly Ile Ser Gly Gly Tyr Thr Gly Pro Gly Phe Lys Thr Val Ile  
 340 345 350  
 Pro Tyr Arg Ala Thr Ala Tyr Leu Ser Cys Arg Leu Val Pro Asn Gln  
 355 360 365  
 Asp Pro Asp Lys Ala Ala His Gln Val Ile His His Leu Lys Gln Gln  
 370 375 380  
 Val Pro Ser Ser Leu Lys Val Leu Leu  
 385 390

&lt;210&gt;1055

&lt;211&gt;978

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1055

Val Thr Glu Ser Met Lys Ala Gly Asp Thr Tyr Arg Asn Phe Ile Ile  
 1 5 10 15  
 Lys Ser Cys Lys Asp Leu Pro Glu Ile Glu Ser Lys Leu Leu Glu Ala  
 20 25 30  
 Glu His Lys Pro Thr Gly Ala Ser Ile Met Met Ile Val Asn Asn Asp  
 35 40 45  
 Glu Glu Asn Val Phe Asn Ile Cys Phe Arg Thr Cys Pro Gln Thr Ser  
 50 55 60  
 Asn Gly Val Ala His Val Leu Glu His Met Val Leu Cys Gly Ser Glu  
 65 70 75 80  
 Asn Tyr Pro Val Arg Asp Pro Phe Phe Ser Met Thr Arg Arg Ser Leu  
 85 90 95  
 Asn Thr Phe Ile Asn Ala Phe Thr Gly Pro Asp Phe Thr Cys Tyr Pro  
 100 105 110  
 Ala Ala Ser Gln Ile Pro Glu Asp Phe Tyr Asn Leu Leu Ser Val Tyr  
 115 120 125  
 Ile Asp Ala Val Phe His Pro Leu Leu Thr Lys Gln Ser Phe Leu Gln  
 130 135 140  
 Glu Ala Trp Arg Tyr Glu Phe Asn Ser Glu Asn His Leu Cys Tyr Thr  
 145 150 155 160  
 Gly Val Val Phe Asn Glu Met Lys Gly Ala Met Met Ser Gly Glu Ala  
 165 170 175  
 Arg Leu Ser Glu Ala Leu Asn Ala Ala Ile Phe Pro Ser Val Thr Tyr  
 180 185 190  
 Gly Val Asn Ser Gly Gly Glu Pro Arg Glu Ile Val Thr Leu Ser His  
 195 200 205  
 Glu Asp Val Arg Ala Phe His Gln Ser Gln Tyr Ser Ile Asn Arg Cys  
 210 215 220  
 Leu Phe Tyr Phe Tyr Gly Asn Ile Lys Pro Ser Arg His Leu Asp Phe

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 225 |     |     |     | 230 |     |     |     | 235 |     |     | 240 |     |     |     |     |
| Leu | Glu | Glu | Lys | Leu | Leu | Arg | Gln | Ala | Thr | Lys | Leu | Glu | Lys | Gln | Ala |
|     |     |     |     | 245 |     |     |     | 250 |     |     |     |     |     | 255 |     |
| Val | Ser | Val | Pro | Leu | Gln | Lys | Arg | Phe | Lys | Glu | Pro | Val | Arg | Asn | Ile |
|     |     |     |     | 260 |     |     |     | 265 |     |     |     |     |     | 270 |     |
| Leu | Thr | Tyr | Pro | Val | Asp | His | Gln | Glu | Glu | Asp | Lys | Val | Leu | Phe | Gly |
|     |     |     |     | 275 |     |     | 280 |     |     |     |     |     | 285 |     |     |
| Ile | Ser | Trp | Leu | Thr | Cys | Ser | Ile | Leu | Glu | Gln | Gln | Glu | Leu | Leu | Ala |
|     |     |     |     | 290 |     |     | 295 |     |     |     | 300 |     |     |     |     |
| Leu | His | Val | Leu | Glu | Ile | Ile | Leu | Met | Gly | Thr | Asp | Ala | Ser | Pro | Leu |
|     |     |     |     | 305 |     |     | 310 |     |     |     | 315 |     |     |     | 320 |
| Lys | Ser | Arg | Leu | Leu | Lys | Ser | Gly | Phe | Cys | Lys | Gln | Thr | Glu | Met | Ser |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Ile | Glu | Asn | Asp | Ile | Arg | Glu | Ile | Pro | Met | Thr | Leu | Val | Cys | Lys | Gly |
|     |     |     |     | 340 |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Cys | Ser | Pro | Ala | Gly | Ala | Gln | Lys | Leu | Glu | Ala | Leu | Ile | Phe | Ala | Ser |
|     |     |     |     | 355 |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Leu | Glu | Glu | Ile | Ile | Arg | Glu | Gly | Ile | Ser | Glu | Asn | Ile | Val | Glu | Gly |
|     |     |     |     | 370 |     |     | 375 |     |     |     | 380 |     |     |     |     |
| Ala | Val | His | Gln | Leu | Glu | Leu | Ser | Arg | Lys | Glu | Ile | Thr | Gly | Tyr | Ser |
|     |     |     |     | 385 |     |     | 390 |     |     |     | 395 |     |     |     | 400 |
| Leu | Pro | Tyr | Gly | Leu | Ser | Leu | Phe | Phe | Arg | Ser | Gly | Leu | Leu | Lys | Gln |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |
| His | Gly | Gly | Ser | Ala | Glu | Asp | Gly | Leu | Arg | Ile | His | Asn | Leu | Phe | Ser |
|     |     |     |     | 420 |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Glu | Leu | Arg | Asn | Ser | Leu | Lys | Asn | Ser | Asp | Tyr | Leu | Ala | Lys | Leu | Ile |
|     |     |     |     | 435 |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Arg | Lys | Tyr | Phe | Leu | Asp | Asn | Pro | His | Phe | Ala | Arg | Val | Ile | Leu | Leu |
|     |     |     |     | 450 |     |     | 455 |     |     |     |     | 460 |     |     |     |
| Pro | Asp | Thr | Glu | Leu | Val | Ala | Lys | Asp | Asn | Lys | Asp | Glu | Gln | Gln | Leu |
|     |     |     |     | 465 |     |     | 470 |     |     |     | 475 |     |     |     | 480 |
| Leu | Leu | Ser | Val | Ser | Glu | Lys | Leu | Thr | Asp | Glu | Asn | Lys | Glu | Lys | Ile |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |     |
| Gln | Gln | Asn | Val | Arg | Glu | Leu | Thr | Glu | Ser | Gln | Glu | Gln | Lys | Glu | Asp |
|     |     |     |     | 500 |     |     |     | 505 |     |     |     |     | 510 |     |     |
| Leu | Asn | Gly | Ile | Leu | Pro | Asn | Leu | Ala | Leu | Asp | Lys | Val | Pro | Thr | Ser |
|     |     |     |     | 515 |     |     | 520 |     |     |     |     | 525 |     |     |     |
| Gly | Lys | Glu | Phe | Pro | Leu | Ile | Lys | Glu | Gly | Leu | Ser | Gln | Gly | Glu | Val |
|     |     |     |     | 530 |     |     | 535 |     |     |     | 540 |     |     |     |     |
| Leu | His | His | Glu | Cys | Phe | Thr | Asn | Asp | Ile | Val | Phe | Ile | Asp | Val | Val |
|     |     |     |     | 545 |     |     | 550 |     |     |     | 555 |     |     |     | 560 |
| Leu | Asp | Ile | Pro | Pro | Leu | Ser | Gly | Glu | Glu | Leu | Pro | Trp | Leu | Arg | Leu |
|     |     |     |     | 565 |     |     |     |     | 570 |     |     |     |     | 575 |     |
| Leu | Val | Phe | Leu | Met | Leu | Gln | Leu | Gly | Cys | Gly | Gly | Arg | Ser | Tyr | Lys |
|     |     |     |     | 580 |     |     |     | 585 |     |     |     |     | 590 |     |     |
| Glu | His | Leu | Glu | Phe | Leu | Leu | Glu | His | Thr | Gly | Gly | Val | Asp | Val | Ser |
|     |     |     |     | 595 |     |     | 600 |     |     |     |     | 605 |     |     |     |
| Tyr | Asp | Phe | Ser | Pro | His | Ala | Asn | Lys | Asn | Ser | Phe | Leu | Ser | Pro | Ser |
|     |     |     |     | 610 |     |     | 615 |     |     |     | 620 |     |     |     |     |
| Val | Ser | Ile | Arg | Gly | Lys | Ala | Leu | Ser | Ser | Lys | Ser | Glu | Lys | Leu | Cys |
|     |     |     |     | 625 |     |     | 630 |     |     |     | 635 |     |     |     | 640 |
| Gly | Ile | Val | Ser | Asp | Met | Leu | Thr | Ser | Val | Asp | Phe | Thr | Asp | Ile | Pro |
|     |     |     |     | 645 |     |     |     |     | 650 |     |     |     |     | 655 |     |
| Arg | Ile | Arg | Glu | Leu | Leu | Met | Gln | His | Asn | Glu | Ala | Leu | Thr | Asn | Ser |
|     |     |     |     | 660 |     |     |     | 665 |     |     |     |     | 670 |     |     |
| Val | Arg | Asn | Ser | Pro | Met | Ser | Tyr | Ala | Val | Ser | Met | Ala | Cys | Ser | Gly |
|     |     |     |     | 675 |     |     | 680 |     |     |     |     | 685 |     |     |     |
| Asn | Ser | Ile | Thr | Gly | Ala | Met | Ser | Tyr | Leu | Thr | Thr | Gly | Leu | Pro | Tyr |
|     |     |     |     | 690 |     |     | 695 |     |     |     |     | 700 |     |     |     |
| Val | Lys | Lys | Ile | Arg | Glu | Leu | Thr | Lys | Asn | Phe | Asp | Gln | Asn | Ile | Asp |
|     |     |     |     | 705 |     |     | 710 |     |     |     | 715 |     |     |     | 720 |
| Glu | Ala | Val | Val | Ile | Leu | Gln | Arg | Leu | Tyr | Thr | Lys | Cys | Phe | Ser | Gly |
|     |     |     |     | 725 |     |     |     |     | 730 |     |     |     |     | 735 |     |
| Lys | Arg | Gln | Ile | Val | Ile | Ser | Gly | Ser | Ala | His | Asn | Tyr | Gln | Gln | Leu |

740 745 750  
 Lys Asp Asn Lys Phe Tyr Gly Leu Leu Asp Tyr Leu Ile Val Ile Pro  
 755 760 765  
 Glu Pro Trp Glu Asn Pro Ser Ile Asn Leu Tyr Val Thr Ser Arg Gly  
 770 775 780  
 Leu His Ile Pro Ala Arg Ala Ala Phe Asn Ala Leu Ala Phe Pro Ile  
 785 790 795 800  
 Gly Asp Ile Ala Tyr Asp His Pro Asp Ala Ala Ala Leu Thr Val Ala  
 805 810 815  
 Ala Glu Ile Leu Asp Asn Val Val Leu His Thr Lys Ile Arg Glu Gln  
 820 825 830  
 Gly Gly Ala Tyr Gly Ser Gly Ala Ala Asn Leu Ser Arg Gly Ser  
 835 840 845  
 Phe Tyr Cys Tyr Ser Tyr Arg Asp Pro Glu Ile Ala Thr Thr Tyr Lys  
 850 855 860  
 Thr Phe Leu Lys Gly Val Ser Glu Ile Ala Ser Gly Asn Phe Thr Lys  
 865 870 875 880  
 Glu Asp Ile Tyr Glu Gly Ala Leu Gly Val Val Gln Gly Leu Asp Met  
 885 890 895  
 Pro Val Ala Pro Gly Ser Arg Ala Ser Val Ala Phe Tyr Arg Leu Lys  
 900 905 910  
 Ser Gly Arg Ile Pro Val Leu Arg Gln Ala Phe Arg Arg Ser Val Leu  
 915 920 925  
 Glu Val Thr Lys Glu His Ile Cys Met Val Met Asp Lys Tyr Leu Glu  
 930 935 940  
 Ser Thr Val Gln Glu Thr Thr Leu Ile Ser Phe Ala Gly Glu Glu Met  
 945 950 955 960  
 Leu Arg Asn Asn Val Leu Thr Leu Asp Lys Asp Phe Pro Ile Val Pro  
 965 970 975  
 Ala Ile

&lt;210&gt;1056

&lt;211&gt;418

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1056

Lys Lys Glu Leu Ala Ser Val Met Asn Leu Pro Val Ser Leu Ala Cys  
 1 5 10 15  
 Leu Leu Leu Ser Gly Cys Val Phe Phe Leu Gly Val Phe Val Ser Ser  
 20 25 30  
 Ser Leu Tyr Ala Arg Lys Lys Arg Ala Phe Leu Glu Lys Ile Gln Lys  
 35 40 45  
 Leu Glu His Glu Asn Gln Leu Leu Gln Thr Ser Leu Asn Leu Ser Arg  
 50 55 60  
 His Gln Glu Gln Leu Ile Glu Asp Phe Ser Asn Arg Leu Ala Leu Ser  
 65 70 75 80  
 Ser His Lys Leu Ile Lys Asp Met Lys Glu Glu Ala Gln Asn Tyr Phe  
 85 90 95  
 Gly Asp Thr Ser Lys Ser Phe Gln Ser Ile Leu Ser Pro Ile Gln Thr  
 100 105 110  
 Thr Leu Thr Thr Phe Lys Gln Ser Leu Glu Thr Phe Glu Thr Lys His  
 115 120 125  
 Ala Glu Asp Arg Gly Arg Leu Lys Glu Gln Ile Ser Gln Leu Leu Ala  
 130 135 140  
 Val Glu Lys Lys Leu Glu His Glu Thr His Val Leu Thr Asp Ile Leu  
 145 150 155 160  
 Lys His Pro Gly Ser Arg Gly Arg Trp Gly Glu Ile Gln Leu Glu Arg  
 165 170 175  
 Ile Leu Glu Leu Ala Gly Met Leu Lys Tyr Cys Asp Tyr Asp Ser Gln  
 180 185 190  
 Thr Thr Ser Ala Gln Gly Ala Phe Arg Ala Asp Ile Ile Ile Arg Leu  
 195 200 205  
 Pro Gln Asp Arg Cys Leu Ile Ile Asp Ala Lys Ala Pro Ile Ser Asp  
 210 215 220

Ser Tyr Phe Ser Val Glu Glu Ile Asp Lys Gly Asp Leu Val Asp Lys  
 225 230 235 240  
 Ile Lys Glu His Ile Lys Thr Leu Lys Ser Lys Ser Tyr Trp Glu Lys  
 245 250 255  
 Phe His Gln Ser Pro Glu Tyr Val Ile Leu Phe Leu Pro Gly Glu Ser  
 260 265 270  
 Leu Phe Asn Asp Ala Ile Arg Leu Ala Pro Glu Leu Met Glu Ile Gly  
 275 280 285  
 Ala Ser Ser Asn Val Ile Leu Ser Ser Pro Leu Thr Leu Leu Ala Leu  
 290 295 300  
 Leu Lys Thr Ile Ala Tyr Met Trp Lys Gln Glu Asn Leu Gln Lys Gln  
 305 310 315 320  
 Ile Gln Glu Val Ser Leu Leu Gly Lys Glu Leu His Arg Arg Leu Gln  
 325 330 335  
 Val Val Phe Thr His Phe Gln Lys Ile Gly Lys Asn Leu Asn Gln Thr  
 340 345 350  
 Val Gln Ser Tyr Asn Asp Met Thr Ser Ser Phe Gln Tyr Arg Val Leu  
 355 360 365  
 Pro Thr Leu Arg Lys Phe Glu Gly Leu Glu Thr Ser Ser Ser His Gln  
 370 375 380  
 Ile Glu Glu Pro Thr Pro Ile Glu Ser Leu Ala Thr Ser Phe Pro His  
 385 390 395 400  
 Thr Cys Asp Ile Asp Thr Asn Leu Ala Val Ile Glu Ser Leu Glu Lys  
 405 410 415  
 Gln Asp

&lt;210&gt;1057

&lt;211&gt;265

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1057

Met Ala Gly Leu Asp Leu Glu Ala Arg Gly Lys Arg Arg Val Val Thr  
 1 5 10 15  
 Pro Asn Ala Ile Thr Ala Phe Gly Leu Cys Cys Gly Leu Phe Ile Ile  
 20 25 30  
 Phe Lys Ser Val Leu Arg Thr Ser Ser Val Glu Leu Phe His Arg  
 35 40 45  
 Leu Gln Gly Leu Ser Leu Leu Leu Ile Ser Ala Met Ile Ala Asp Phe  
 50 55 60  
 Ser Asp Gly Ala Ile Ala Arg Ile Met Lys Ala Glu Ser Ala Phe Gly  
 65 70 75 80  
 Ala Gln Phe Asp Ser Leu Ser Asp Ala Val Thr Phe Gly Ile Ala Pro  
 85 90 95  
 Pro Leu Ile Ala Ile Lys Ser Leu Asp Gly Ile Tyr Val Gly Asn Phe  
 100 105 110  
 Phe Ser Ser Leu Leu Leu Ile Thr Ser Ile Ile Tyr Ser Leu Cys Gly  
 115 120 125  
 Val Leu Arg Leu Val Arg Tyr Asn Leu Phe Ser Gln Lys Thr Val Asp  
 130 135 140  
 Val Ser Lys Pro Tyr Cys Phe Ile Gly Leu Pro Ile Pro Ala Ala Ala  
 145 150 155 160  
 Ala Ser Ile Val Ser Leu Ala Leu Phe Leu Ala Ser Asp Phe Phe Pro  
 165 170 175  
 Asp Leu Pro Ala Gln Leu Arg Val Gly Leu Leu Ser Phe Ala Leu Leu  
 180 185 190  
 Phe Ile Gly Gly Leu Met Ile Ser Pro Trp Lys Phe Pro Gly Val Lys  
 195 200 205  
 His Phe Arg Phe Asn Val Ser Ser Phe Leu Leu Val Val Thr Ile Gly  
 210 215 220  
 Leu Ala Ala Cys Leu Phe Phe Ser Gly Leu Val Asp His Phe Val Glu  
 225 230 235 240  
 Val Phe Phe Leu Val Ser Trp Leu Tyr Thr Leu Val Gly Phe Pro Ile  
 245 250 255  
 Phe Ser Ile Ile Tyr Arg Lys Lys Ser

260 265  
 <210>1058  
 <211>1047  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1058  
 Gly Lys Val Met Val Glu Val Glu Glu Lys His Tyr Thr Ile Val Lys  
 1 5 10 15  
 Arg Asn Gly Met Phe Val Pro Phe Asn Gln Asp Arg Ile Phe Gln Ala  
 20 25 30  
 Leu Glu Ala Ala Phe Arg Asp Thr Arg Ser Leu Glu Thr Ser Ser Pro  
 35 40 45  
 Leu Pro Lys Asp Leu Glu Glu Ser Ile Ala Gln Ile Thr His Lys Val  
 50 55 60  
 Val Lys Glu Val Leu Ala Lys Ile Ser Glu Gly Gln Val Val Thr Val  
 65 70 75 80  
 Glu Arg Ile Gln Asp Leu Val Glu Ser Gln Leu Tyr Ile Ser Gly Leu  
 85 90 95  
 Gln Asp Val Ala Arg Asp Tyr Ile Val Tyr Arg Asp Gln Arg Lys Ala  
 100 105 110  
 Glu Arg Gly Asn Ser Ser Ser Ile Ile Ala Ile Ile Arg Arg Asp Gly  
 115 120 125  
 Gly Ser Ala Lys Phe Asn Pro Met Lys Ile Ser Ala Ala Leu Glu Lys  
 130 135 140  
 Ala Phe Arg Ala Thr Leu Gln Ile Asn Gly Met Thr Pro Pro Ala Thr  
 145 150 155 160  
 Leu Ser Glu Ile Asn Asp Leu Thr Leu Arg Ile Val Glu Asp Val Leu  
 165 170 175  
 Ser Leu His Gly Glu Glu Ala Ile Asn Leu Glu Glu Ile Gln Asp Ile  
 180 185 190  
 Val Glu Lys Gln Leu Met Val Ala Gly Tyr Tyr Asp Val Ala Lys Asn  
 195 200 205  
 Tyr Ile Leu Tyr Arg Glu Ala Arg Ala Arg Ala Arg Ala Asn Lys Asp  
 210 215 220  
 Gln Asp Gly Gln Glu Glu Phe Val Pro Gln Glu Thr Tyr Val Val  
 225 230 235 240  
 Gln Lys Glu Asp Gly Thr Thr Tyr Leu Leu Arg Lys Thr Asp Leu Glu  
 245 250 255  
 Lys Arg Phe Ser Trp Ala Cys Lys Arg Phe Pro Lys Thr Thr Asp Ser  
 260 265 270  
 Gln Leu Leu Ala Asp Met Ala Phe Met Asn Leu Tyr Ser Gly Ile Lys  
 275 280 285  
 Glu Asp Glu Val Thr Thr Ala Cys Ile Met Ala Ala Arg Ala Asn Ile  
 290 295 300  
 Glu Arg Glu Pro Asp Tyr Ala Phe Ile Ala Ala Glu Leu Leu Thr Ser  
 305 310 315 320  
 Ser Leu Tyr Glu Glu Thr Leu Gly Cys Ser Ser Gln Asp Pro Asn Leu  
 325 330 335  
 Ser Glu Ile His Lys Lys His Phe Lys Glu Tyr Ile Leu Asn Gly Glu  
 340 345 350  
 Glu Tyr Arg Leu Asn Pro Gln Leu Lys Asp Tyr Asp Leu Asp Ala Leu  
 355 360 365  
 Ser Glu Val Leu Asp Leu Ser Arg Asp Gln Gln Phe Ser Tyr Met Gly  
 370 375 380  
 Val Gln Asn Leu Tyr Asp Arg Tyr Phe Asn Leu His Glu Gly Arg Arg  
 385 390 395 400  
 Leu Glu Thr Ala Gln Ile Phe Trp Met Arg Val Ser Met Gly Leu Ala  
 405 410 415  
 Leu Asn Glu Gly Glu Gln Lys Asn Phe Trp Ala Ile Thr Phe Tyr Asn  
 420 425 430  
 Leu Leu Ser Thr Phe Arg Tyr Thr Pro Ala Thr Pro Thr Leu Phe Asn  
 435 440 445  
 Ser Gly Met Arg His Ser Gln Leu Ser Ser Cys Tyr Leu Ser Thr Val  
 450 455 460

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Asp | Asp | Leu | Ser | His | Ile | Tyr | Lys | Val | Ile | Ser | Asp | Asn | Ala | Leu |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Leu | Ser | Lys | Trp | Ala | Gly | Gly | Ile | Gly | Asn | Asp | Trp | Thr | Asp | Val | Arg |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |     |
| Ala | Thr | Gly | Ala | Val | Ile | Lys | Gly | Thr | Asn | Gly | Lys | Ser | Gln | Gly | Val |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |
| Ile | Pro | Phe | Ile | Lys | Val | Ala | Asn | Asp | Thr | Ala | Ile | Ala | Val | Asn | Gln |
|     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |
| Gly | Gly | Lys | Arg | Lys | Gly | Ala | Met | Cys | Val | Tyr | Leu | Glu | Asn | Trp | His |
|     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |
| Leu | Asp | Tyr | Glu | Asp | Phe | Leu | Glu | Leu | Arg | Lys | Asn | Thr | Gly | Asp | Glu |
| 545 |     |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |
| Arg | Arg | Arg | Thr | His | Asp | Ile | Asn | Thr | Ala | Ser | Trp | Ile | Pro | Asp | Leu |
|     |     |     |     | 565 |     |     |     |     | 570 |     |     |     |     | 575 |     |
| Phe | Phe | Lys | Arg | Leu | Glu | Lys | Lys | Gly | Met | Trp | Thr | Leu | Phe | Ser | Pro |
|     |     |     | 580 |     |     |     |     | 585 |     |     |     |     | 590 |     |     |
| Asp | Asp | Val | Pro | Gly | Leu | His | Glu | Ala | Tyr | Gly | Leu | Glu | Phe | Glu | Lys |
|     |     | 595 |     |     |     |     | 600 |     |     |     |     | 605 |     |     |     |
| Leu | Tyr | Glu | Glu | Tyr | Glu | Arg | Lys | Val | Glu | Ser | Gly | Glu | Ile | Arg | Leu |
|     | 610 |     |     |     |     | 615 |     |     |     |     | 620 |     |     |     |     |
| Tyr | Lys | Lys | Val | Glu | Ala | Glu | Val | Leu | Trp | Arg | Lys | Met | Leu | Ser | Met |
| 625 |     |     |     |     | 630 |     |     |     |     | 635 |     |     |     |     | 640 |
| Leu | Tyr | Glu | Thr | Gly | His | Pro | Trp | Ile | Thr | Phe | Lys | Asp | Pro | Ser | Asn |
|     |     |     |     | 645 |     |     |     |     | 650 |     |     |     |     | 655 |     |
| Ile | Arg | Ser | Asn | Gln | Asp | His | Val | Gly | Val | Val | Arg | Cys | Ser | Asn | Leu |
|     |     |     | 660 |     |     |     |     | 665 |     |     |     |     | 670 |     |     |
| Cys | Thr | Glu | Ile | Leu | Leu | Asn | Cys | Ser | Glu | Ser | Glu | Thr | Ala | Val | Cys |
|     |     | 675 |     |     |     |     | 680 |     |     |     |     | 685 |     |     |     |
| Asn | Leu | Gly | Ser | Ile | Asn | Leu | Val | Glu | His | Ile | Arg | Asn | Asp | Lys | Leu |
|     | 690 |     |     |     |     | 695 |     |     |     |     | 700 |     |     |     |     |
| Asp | Glu | Glu | Lys | Leu | Lys | Glu | Thr | Ile | Ser | Ile | Ala | Ile | Arg | Ile | Leu |
| 705 |     |     |     |     | 710 |     |     |     |     | 715 |     |     |     |     | 720 |
| Asp | Asn | Val | Ile | Asp | Leu | Asn | Phe | Tyr | Pro | Thr | Pro | Glu | Ala | Lys | Gln |
|     |     |     |     | 725 |     |     |     |     | 730 |     |     |     |     | 735 |     |
| Ala | Asn | Leu | Thr | His | Arg | Ala | Val | Gly | Leu | Gly | Val | Met | Gly | Phe | Gln |
|     |     |     | 740 |     |     |     |     | 745 |     |     |     |     | 750 |     |     |
| Asp | Val | Leu | Tyr | Glu | Leu | Asn | Ile | Ser | Tyr | Ala | Ser | Gln | Glu | Ala | Val |
|     |     | 755 |     |     |     |     | 760 |     |     |     |     | 765 |     |     |     |
| Glu | Phe | Ser | Asp | Glu | Cys | Ser | Glu | Ile | Ile | Ala | Tyr | Tyr | Ala | Ile | Leu |
|     | 770 |     |     |     |     | 775 |     |     |     |     | 780 |     |     |     |     |
| Ala | Ser | Ser | Leu | Leu | Ala | Lys | Glu | Arg | Gly | Thr | Tyr | Ala | Ser | Tyr | Ser |
| 785 |     |     |     |     | 790 |     |     |     |     | 795 |     |     |     |     | 800 |
| Gly | Ser | Lys | Trp | Asp | Arg | Gly | Tyr | Leu | Pro | Leu | Asp | Thr | Ile | Glu | Leu |
|     |     |     |     | 805 |     |     |     |     | 810 |     |     |     |     | 815 |     |
| Leu | Lys | Glu | Thr | Arg | Gly | Glu | His | Asn | Val | Leu | Val | Asp | Thr | Ser | Ser |
|     |     |     | 820 |     |     |     |     | 825 |     |     |     |     | 830 |     |     |
| Lys | Lys | Asp | Trp | Thr | Pro | Val | Arg | Asp | Thr | Ile | Gln | Lys | Tyr | Gly | Met |
|     |     | 835 |     |     |     |     | 840 |     |     |     |     | 845 |     |     |     |
| Arg | Asn | Ser | Gln | Val | Met | Ala | Ile | Ala | Pro | Thr | Ala | Thr | Ile | Ser | Asn |
|     | 850 |     |     |     |     | 855 |     |     |     |     | 860 |     |     |     |     |
| Ile | Ile | Gly | Val | Thr | Gln | Ser | Ile | Glu | Pro | Met | Tyr | Lys | His | Leu | Phe |
| 865 |     |     |     |     | 870 |     |     |     |     | 875 |     |     |     |     | 880 |
| Val | Lys | Ser | Asn | Leu | Ser | Gly | Glu | Phe | Thr | Ile | Pro | Asn | Thr | Tyr | Leu |
|     |     |     |     | 885 |     |     |     |     | 890 |     |     |     |     | 895 |     |
| Ile | Lys | Lys | Leu | Lys | Glu | Leu | Gly | Leu | Trp | Asp | Ala | Glu | Met | Leu | Asp |
|     |     |     | 900 |     |     |     |     | 905 |     |     |     |     | 910 |     |     |
| Asp | Leu | Lys | Tyr | Phe | Asp | Gly | Ser | Leu | Leu | Glu | Ile | Glu | Arg | Ile | Pro |
|     | 915 |     |     |     |     |     | 920 |     |     |     |     | 925 |     |     |     |
| Asn | His | Leu | Lys | Lys | Leu | Phe | Leu | Thr | Ala | Phe | Glu | Ile | Glu | Pro | Glu |
|     | 930 |     |     |     |     | 935 |     |     |     |     |     | 940 |     |     |     |
| Trp | Ile | Ile | Glu | Cys | Thr | Ser | Arg | Arg | Gln | Lys | Trp | Ile | Asp | Met | Gly |
| 945 |     |     |     |     | 950 |     |     |     |     | 955 |     |     |     |     | 960 |
| Val | Ser | Leu | Asn | Leu | Tyr | Leu | Ala | Glu | Pro | Asp | Gly | Lys | Lys | Leu | Ser |
|     |     |     |     | 965 |     |     |     |     | 970 |     |     |     |     | 975 |     |

Asn Met Tyr Leu Thr Ala Trp Lys Lys Gly Leu Lys Thr Thr Tyr Tyr  
 980 985 990  
 Leu Arg Ser Gln Ala Ala Thr Ser Val Glu Lys Ser Phe Ile Asp Ile  
 995 1000 1005  
 Asn Lys Arg Gly Ile Gln Pro Arg Trp Met Lys Asn Lys Ser Ala Ser  
 1010 1015 1020  
 Thr Ser Ile Val Val Glu Arg Lys Thr Thr Pro Val Cys Ser Met Glu  
 1025 1030 1035 1040  
 Glu Gly Cys Glu Ser Cys Gln  
 1045

&lt;210&gt;1059

&lt;211&gt;365

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1059

Leu Phe Asn Gly Arg Arg Leu Arg Ile Leu Ser Ile Thr Glu Lys Arg  
 1 5 10 15  
 Gly Ala Lys Met Glu Ala Asp Ile Leu Asp Gly Lys Leu Lys Arg Val  
 20 25 30  
 Glu Val Ser Lys Lys Gly Leu Val Asn Cys Asn Gln Val Asp Val Asn  
 35 40 45  
 Gln Leu Val Pro Ile Lys Tyr Lys Trp Ala Trp Glu His Tyr Leu Asn  
 50 55 60  
 Gly Cys Ala Asn Asn Trp Leu Pro Thr Glu Val Pro Met Ala Arg Asp  
 65 70 75 80  
 Ile Glu Leu Trp Lys Ser Asp Glu Leu Ser Glu Asp Glu Arg Arg Val  
 85 90 95  
 Ile Leu Leu Asn Leu Gly Phe Phe Ser Thr Ala Glu Ser Leu Val Gly  
 100 105 110  
 Asn Asn Ile Val Leu Ala Ile Phe Lys His Ile Thr Asn Pro Glu Ala  
 115 120 125  
 Arg Gln Tyr Leu Leu Arg Gln Ala Phe Glu Glu Ala Val His Thr His  
 130 135 140  
 Thr Phe Leu Tyr Ile Cys Glu Ser Leu Gly Leu Asp Glu Gly Glu Val  
 145 150 155 160  
 Phe Asn Ala Tyr Asn Glu Arg Ala Ser Ile Arg Ala Lys Asp Asp Phe  
 165 170 175  
 Gln Met Thr Leu Thr Val Asp Val Leu Asp Pro Asn Phe Ser Val Gln  
 180 185 190  
 Ser Ser Glu Gly Leu Gly Gln Phe Ile Lys Asn Leu Val Gly Tyr Tyr  
 195 200 205  
 Ile Ile Met Glu Gly Ile Phe Phe Tyr Ser Gly Phe Val Met Ile Leu  
 210 215 220  
 Ser Phe His Arg Gln Asn Lys Met Thr Gly Ile Gly Glu Gln Tyr Gln  
 225 230 235 240  
 Tyr Ile Leu Arg Asp Glu Thr Ile His Leu Asn Phe Gly Ile Asp Leu  
 245 250 255  
 Ile Asn Gly Ile Lys Glu Glu Asn Pro Glu Val Trp Thr Thr Glu Leu  
 260 265 270  
 Gln Glu Glu Ile Val Ala Leu Ile Glu Lys Ala Val Glu Leu Glu Ile  
 275 280 285  
 Glu Tyr Ala Lys Asp Cys Leu Pro Arg Gly Ile Leu Gly Leu Arg Ser  
 290 295 300  
 Ser Met Phe Ile Asp Tyr Val Arg His Ile Ala Asp Arg Arg Leu Glu  
 305 310 315 320  
 Arg Ile Gly Leu Lys Pro Ile Tyr His Ser Arg Asn Pro Phe Pro Trp  
 325 330 335  
 Met Ser Glu Thr Met Asp Leu Asn Lys Glu Lys Asn Phe Phe Glu Thr  
 340 345 350  
 Arg Val Thr Glu Tyr Gln Thr Ala Gly Asn Leu Ser Trp  
 355 360 365

&lt;210&gt;1060

&lt;211&gt;228

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1060

Phe Leu Leu Phe Met Lys Pro Gln Asp Leu Ser Pro Pro Phe Leu Trp  
 1 5 10 15  
 Lys Glu Arg Arg Pro Cys Ile Gln Asp Gly Val Leu Tyr Val Pro Arg  
 20 25 30  
 His Tyr Phe Glu His Gln Asn Phe Ser Thr Ser Tyr His Gln Glu Phe  
 35 40 45  
 Phe Gln Asn His Thr Ser Ile Ala Cys Glu Leu Cys Ser Gly Asn Gly  
 50 55 60  
 Asp Trp Val Val Ala Gln Ala Gln Lys Asp Pro Gln Val Leu Trp Ile  
 65 70 75 80  
 Ala Val Glu Gln Arg Phe Asp Arg Val Arg Lys Ile Trp Ser Lys Met  
 85 90 95  
 Ile Asn His Gln Ile Gln Asn Leu Arg Ile Val Cys Gly Thr Ala Glu  
 100 105 110  
 Thr Phe Phe Gln Tyr Tyr Val Pro Asp Gln Phe Leu Gln Arg Leu Val  
 115 120 125  
 Val Asn Phe Pro Asp Pro Trp Pro Lys Met Arg His Arg Lys His Arg  
 130 135 140  
 Leu Leu Gln Pro Ser Phe Val Gln Glu Ile Ser Arg Ser Leu Gln Asp  
 145 150 155 160  
 Ser Ala Val Phe Ala Leu Ala Thr Asp Asp Lys Thr Tyr Leu Leu Glu  
 165 170 175  
 Ser Ile Glu Ala Leu Gln Thr His Leu Ala Pro Arg Met Glu Thr Pro  
 180 185 190  
 Tyr Tyr Ile Lys Met Thr Asp Thr Tyr Gly Asn Ser Trp Phe Glu Asn  
 195 200 205  
 Leu Trp Arg Thr Lys Gly Gln Glu Ile Phe Tyr Thr Glu Phe Ile Lys  
 210 215 220  
 Lys Ala Gly Ile  
 225

&lt;210&gt;1061

&lt;211&gt;175

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1061

Met Phe Ala Tyr Arg Thr Leu Leu Thr His Asn Val Val Gln Val Ser  
 1 5 10 15  
 His Glu Ile Phe Lys Thr Thr Val Val Pro Gly Asp Thr Val Ile Asp  
 20 25 30  
 Ala Thr Cys Gly Asn Gly Asn Asp Ser Leu Phe Leu Ala Arg Leu Leu  
 35 40 45  
 Gln Gly Glu Gly Arg Leu Val Val Tyr Asp Ile Gln Lys Glu Ala Leu  
 50 55 60  
 Ser Asn Ala Leu Leu Leu Phe Glu Thr His Leu Ser Glu Gln Glu Arg  
 65 70 75 80  
 Ser Val Ile Glu Met Lys Glu Gln Ser His Glu His Ile Leu Glu Lys  
 85 90 95  
 Asp Val Lys Leu Ile His Tyr Asn Leu Gly Tyr Leu Pro Lys Gly Asn  
 100 105 110  
 Lys Glu Ile Thr Thr Leu Ala Arg Thr Thr Glu Ile Ser Leu Glu Tyr  
 115 120 125  
 Ala Leu Asn Ile Val Arg Pro Asp Gly Leu Ile Thr Val Val Cys Tyr  
 130 135 140  
 Pro Gly His Pro Glu Gly Glu Lys Glu Thr His Ser Val Glu Ser Leu  
 145 150 155 160  
 Ala Gln Arg Leu His Pro Lys Glu Trp Cys Val Ser His Phe Met  
 165 170 175

&lt;210&gt;1062

&lt;211&gt;97

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1062



Arg Ser Pro Ile Arg Ser Leu Leu Leu Ala Val Phe Ser Val Ile Leu  
 1 5 10 15  
 Lys Glu Leu Leu Leu Ala Ser Leu Leu Thr Gln Pro Gly Leu Lys Gly  
 20 25 30  
 Leu Ala Ile Gly Gly Ala Gln Ile Ser Pro Leu His Ala Asn Phe Ile  
 35 40 45  
 Ile Asn Thr Gly Lys Ala Thr Ser Asp Glu Val Lys Gln Leu Ile Ala  
 50 55 60  
 Ile Ile Gln Ser Thr Leu Lys Thr Gln Gly Ile Asp Leu Glu His Glu  
 65 70 75 80  
 Ile Arg Ile Ile Pro Tyr Gln Pro Lys Ile His Ser Pro Val Ser Glu  
 85 90 95  
 Lys

&lt;210&gt;1063

&lt;211&gt;263

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1063

Met Lys Glu Ala Ala Pro Met His Phe Pro Phe Pro Val Arg Arg Ser  
 1 5 10 15  
 Val Trp Leu Asn Arg Tyr Ser Thr Phe Arg Ile Gly Gly Pro Ala Asn  
 20 25 30  
 Tyr Phe Lys Ala Ile His Thr Ile Glu Glu Ala Arg Glu Val Ile Arg  
 35 40 45  
 Phe Leu His Ser Ile Asn Tyr Pro Phe Leu Ile Ile Gly Lys Gly Ser  
 50 55 60  
 Asn Cys Leu Phe Asp Asp Arg Gly Phe Asp Gly Phe Val Leu Tyr Asn  
 65 70 75 80  
 Ala Ile Tyr Gly Lys Gln Phe Leu Glu Asp Ala Arg Ile Lys Ala Tyr  
 85 90 95  
 Ser Gly Leu Ser Phe Ala Ala Leu Gly Lys Ala Thr Ala Tyr Asn Gly  
 100 105 110  
 Tyr Ser Gly Leu Glu Phe Ala Ala Gly Ile Pro Gly Ser Val Gly Gly  
 115 120 125  
 Ala Ile Phe Met Asn Ala Gly Thr Asn Glu Ser Asp Ile Ser Ser Val  
 130 135 140  
 Val Arg Asn Val Glu Thr Ile Asn Ser Glu Gly Glu Leu Cys Ser Tyr  
 145 150 155 160  
 Ser Val Glu Glu Leu Glu Leu Ser Tyr Arg Ser Ser Arg Phe His Arg  
 165 170 175  
 Gln Gln Glu Phe Ile Leu Ser Ala Thr Phe Gln Leu Ser Lys Lys Gln  
 180 185 190  
 Val Ser Ala Asp His Ser Lys Ser Ile Leu Gln His Arg Leu Met Thr  
 195 200 205  
 Gln Pro Tyr Thr Gln Pro Ser Ala Gly Cys Ile Phe Arg Asn Pro Glu  
 210 215 220  
 Gly Thr Ser Ala Gly Lys Leu Ile Asp Ala Ala Trp Val Glu Gly Ile  
 225 230 235 240  
 Ser Asn Arg Arg Gly Thr Asn Phe Ser Val Ala Cys Lys Leu His Tyr  
 245 250 255  
 Gln Tyr Trp Gln Gly His Phe  
 260

&lt;210&gt;1064

&lt;211&gt;179

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1064

Leu Arg Thr Ser Leu Ala Val Lys Cys Val Leu Leu Thr Ile Phe Trp  
 1 5 10 15  
 Leu Leu Val Met Ala Thr Leu Ser Pro Glu Lys Phe Ser Gly Ser Pro  
 20 25 30  
 Ile Ser Ile Ser Lys Glu Phe Pro Gln Gln Lys Met Arg Glu Ile Ile  
 35 40 45

Leu Gln Met Leu Tyr Ala Leu Asp Met Ala Pro Ser Ala Glu Asp Ser  
 50 55 60  
 Leu Val Pro Leu Leu Met Ser Gln Thr Ala Val Ser Gln Lys His Val  
 65 70 75 80  
 Leu Val Ala Leu Asn Gln Thr Lys Ser Ile Leu Glu Lys Ser Gln Glu  
 85 90 95  
 Leu Asp Leu Ile Ile Gly Asn Ala Leu Lys Asn Lys Ser Phe Asp Ser  
 100 105 110  
 Leu Asp Leu Val Glu Lys Asn Val Leu Arg Leu Thr Leu Phe Glu His  
 115 120 125  
 Phe Tyr Ser Pro Pro Ile Asn Lys Ala Ile Leu Ile Ala Glu Ala Ile  
 130 135 140  
 Arg Leu Val Lys Lys Phe Ser Tyr Ser Glu Ala Cys Pro Phe Ile Gln  
 145 150 155 160  
 Ala Ile Leu Asn Asp Ile Phe Thr Asp Ser Ser Leu Asn Glu Asn Ser  
 165 170 175  
 Leu Ser Ile

&lt;210&gt;1065

&lt;211&gt;187

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1065

Ser Val Ala Leu Asn Phe Lys Ile Asn Arg Gln Ile Arg Ala Pro Lys  
 1 5 10 15  
 Val Arg Leu Ile Gly Ser Ala Gly Glu Gln Leu Gly Ile Leu Ala Ile  
 20 25 30  
 Lys Asp Ala Leu Asp Leu Ala Arg Glu Ala Gly Leu Asp Leu Val Glu  
 35 40 45  
 Val Ala Ser Asn Ser Glu Pro Val Cys Lys Ile Met Asp Tyr Gly  
 50 55 60  
 Lys Tyr Arg Tyr Gly Leu Thr Lys Lys Glu Lys Asp Ser Lys Lys Ala  
 65 70 75 80  
 Gln His Gln Val Arg Ile Lys Glu Val Lys Leu Lys Pro Asn Ile Asp  
 85 90 95  
 Glu Asn Asp Phe Ser Thr Lys Leu Lys Gln Ala Arg Thr Phe Val Glu  
 100 105 110  
 Lys Gly Asn Lys Val Lys Ile Thr Cys Met Phe Arg Gly Arg Glu Leu  
 115 120 125  
 Ala Tyr Pro Glu His Gly Phe Lys Val Val Gln Lys Met Ser Gln Gly  
 130 135 140  
 Leu Glu Asp Ile Gly Phe Val Glu Ala Glu Pro Lys Leu Ala Gly Arg  
 145 150 155 160  
 Ser Leu Ile Cys Val Val Ala Pro Gly Thr Val Lys Thr Lys Lys Lys  
 165 170 175  
 Gln Glu Lys Ser His Ala Gln Asp Glu Asn Gln  
 180 185

&lt;210&gt;1066

&lt;211&gt;121

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1066

Met Val Arg Ala Thr Gly Ser Val Ala Ser Arg Arg Arg Arg Lys Arg  
 1 5 10 15  
 Ile Leu Lys Gln Ala Lys Gly Phe Trp Gly Asp Arg Lys Gly His Ile  
 20 25 30  
 Arg Gln Ser Arg Ser Ser Val Met Arg Ala Met Ala Phe Asn Tyr Met  
 35 40 45  
 His Arg Lys Asp Arg Lys Gly Asp Phe Arg Ser Leu Trp Ile Ala Arg  
 50 55 60  
 Leu Asn Val Ala Ser Arg Ile His Ser Leu Ser Tyr Ser Arg Leu Ile  
 65 70 75 80  
 Asn Gly Leu Lys Cys Ala Asn Ile Ser Leu Asn Arg Lys Met Leu Ser  
 85 90 95

Glu Ile Ala Ile His Asn Pro Glu Gly Phe Ala Glu Ile Ala Asn Gln  
                   100                  105                  110  
 Ala Lys Lys Lys Ala Leu Glu Ala Thr Val  
                   115                  120  
 <210>1067  
 <211>339  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1067  
 Met Glu Met Lys Glu Glu Ile Glu Ala Val Lys Gln Gln Phe His Ser  
   1                  5                  10                  15  
 Glu Leu Asp Gln Val Asn Ser Ser Gln Ala Leu Ala Asp Leu Lys Val  
                   20                  25                  30  
 Arg Tyr Leu Gly Lys Lys Gly Ile Phe Arg Ser Phe Ser Glu Lys Leu  
                   35                  40                  45  
 Lys Gln Cys Thr Asp Lys Ala Lys Leu Gly Ser Leu Ile Asn Asp Phe  
                   50                  55                  60  
 Lys Thr Tyr Val Glu Asp Leu Leu Gln Glu Lys Ser Leu Val Leu Leu  
                   65                  70                  75                  80  
 Ala Ser Glu Gln Ala Glu Ala Phe Ser Lys Glu Lys Ile Asp Ser Ser  
                   85                  90                  95  
 Leu Pro Gly Asp Ser Gln Pro Ser Gly Gly Arg His Ile Leu Lys Ser  
                   100                  105                  110  
 Ile Leu Asp Asp Val Val Asp Ile Phe Val His Leu Gly Phe Cys Val  
                   115                  120                  125  
 Arg Glu Ala Pro Asn Ile Glu Ser Glu Ala Asn Asn Phe Thr Leu Leu  
                   130                  135                  140  
 Asn Phe Thr Glu Asp His Pro Ala Arg Gln Met His Asp Thr Phe Tyr  
                   145                  150                  155                  160  
 Leu Asn Ala Thr Thr Val Leu Arg Thr His Thr Ser Asn Val Gln Ala  
                   165                  170                  175  
 Arg Glu Leu Lys Lys Gln Gln Pro Pro Ile Lys Val Val Ala Pro Gly  
                   180                  185                  190  
 Leu Cys Phe Arg Asn Glu Asp Ile Ser Ala Arg Ser His Val Leu Phe  
                   195                  200                  205  
 His Gln Val Glu Ala Phe Tyr Val Asp His Asn Val Thr Phe Ser Asp  
                   210                  215                  220  
 Leu Thr Ala Ile Leu Ser Ala Phe Tyr His Ser Phe Phe Gln Arg Lys  
                   225                  230                  235                  240  
 Thr Glu Leu Arg Phe Arg His Ser Tyr Phe Pro Phe Val Glu Pro Gly  
                   245                  250                  255  
 Ile Glu Val Asp Val Ser Cys Glu Cys Cys Gly Lys Gly Cys Ala Leu  
                   260                  265                  270  
 Cys Lys His Thr Gly Trp Leu Glu Val Ala Gly Ala Gly Met Ile His  
                   275                  280                  285  
 Pro Gln Val Leu Arg Asn Gly Asn Val Asp Pro Glu Ile Tyr Ser Gly  
                   290                  295                  300  
 Tyr Ala Val Gly Met Gly Ile Glu Arg Leu Ala Met Leu Lys Tyr Gly  
                   305                  310                  315                  320  
 Val Ser Asp Ile Arg Leu Phe Ser Glu Asn Asp Leu Arg Phe Leu Gln  
                   325                  330                  335  
 Gln Phe Ser

&lt;210&gt;1068

&lt;211&gt;690

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1068

Leu Phe Trp Phe His Arg Gly Gly Arg Met Lys Arg Ser Arg Arg Asn  
   1                  5                  10                  15  
 Phe Glu Gln Ala Leu Glu Asn Leu Glu Lys Leu Lys Glu Ile Ser Leu  
                   20                  25                  30  
 Ala Thr Ser Asn Asp Ser Tyr Leu Asn Asn Pro Ala Arg Phe Asn Gln  
                   35                  40                  45

Arg Lys Gln Thr Gly Ser Ser Val Met Glu Met Lys Glu Ala Leu Lys  
 50 55 60  
 Asn Val Glu Asn Tyr Leu Leu Glu Ile Ser Cys Val Ser Lys Ser His  
 65 70 75 80  
 Ala Asp Lys Ala Leu Lys Glu Ser Asp Phe Leu Ile Ala Gly Val Gln  
 85 90 95  
 Asn Val Phe Ser Phe Leu Glu Asn Gln Glu Asp Leu Tyr Lys Ser Leu  
 100 105 110  
 Leu Asp Glu Tyr Ser Glu Val Thr Lys Ala Tyr Asp Glu Val Lys Lys  
 115 120 125  
 Asn Leu Lys Glu Val Pro Thr Tyr Asp Leu Ser Thr Asp Glu Glu Thr  
 130 135 140  
 Glu Glu His Lys Glu Pro Glu Cys Phe Leu Asn Asn Leu Val Glu Val  
 145 150 155 160  
 Lys Arg Asp Arg Ser Tyr Glu Leu Phe Tyr Met Leu Asp Glu Gln Asp  
 165 170 175  
 Lys Arg Phe Tyr Asn Asp Ala Leu Val Gln Ile Ile Tyr Lys Gln Asn  
 180 185 190  
 Lys Leu His Glu Thr Val Asn Glu Gly Asp Pro Leu Thr Lys Thr Leu  
 195 200 205  
 Leu Trp Asn Ser Glu Glu Val Lys Asn Ile Ala Ser Ser Leu Val Ile  
 210 215 220  
 Val Asn Asp Met Pro Leu Arg Leu Phe Tyr Gln Arg Ala Leu Ser His  
 225 230 235 240  
 Leu Asp Ile Glu Ala Val Val Lys Val His Asn Ala Val Met Ala Leu  
 245 250 255  
 Phe Phe Ser Arg Tyr Glu Ala Thr Met Val Phe Lys Ser Pro Lys Lys  
 260 265 270  
 His Asn Ile Trp Tyr Phe Asn Asp Phe Leu Leu Phe Leu Arg Glu Ala  
 275 280 285  
 Trp Lys Asp Leu Asn Asn Asn Val Ile Asp Ser Gln Glu Arg Lys Gln  
 290 295 300  
 Thr Lys Leu Leu Ala Ser Ala Leu Ser Leu Gly Ile Phe Glu Ser Lys  
 305 310 315 320  
 Leu Val Phe Glu Glu Ala Ser Arg Tyr Leu Tyr Phe Asn Ile Gln Thr  
 325 330 335  
 Lys Leu Glu Asn Ala Asn Gly Lys Lys Pro Leu Ser Pro Gly Gln Tyr  
 340 345 350  
 Leu Thr Asp Ala Tyr Glu Glu Leu His Arg Leu Ile Ser Lys Tyr Pro  
 355 360 365  
 Asn Gly Pro Leu Phe Lys Ala Met Asp Arg Val Leu Glu His Glu Ser  
 370 375 380  
 Arg Pro Tyr Asp Pro Met Ile Leu Gly Ile Leu Pro Ser Leu Glu Gly  
 385 390 395 400  
 Thr Leu Lys Leu His Gly Lys Ser Ile Asp Ile Ile Arg Ser Pro Ser  
 405 410 415  
 Pro Val Thr Gln Ser Ser Ile Leu Tyr Ala Asn Cys Asn Glu Glu Phe  
 420 425 430  
 Leu Gly Phe Leu Asn Ala Lys Ala His Arg Ser Glu Val Thr Leu Val  
 435 440 445  
 Leu Asn Ile Gln Asn Arg Ile Ser Arg Lys Glu Arg Ala Arg Ser Arg  
 450 455 460  
 Val Ile Glu Glu Ala Leu Glu Gln Glu Glu His Ala Pro Tyr Val His  
 465 470 475 480  
 Ala Phe Ser Phe Pro Glu Pro Glu Glu Leu Leu Gln Asn Leu Glu Ser  
 485 490 495  
 Ile His Gly Asp Ile Glu Thr Phe Ala Asp Phe Phe Ser Ile Leu Gln  
 500 505 510  
 Glu Glu Phe His Lys Pro Leu Leu Ala Ser Ser Phe Phe Leu Thr Lys  
 515 520 525  
 Glu Leu Lys Glu Phe Val Gly Ser Phe Leu Lys Glu Lys Leu Thr Ala  
 530 535 540  
 Leu Lys Asp Ile Phe Phe Ala Lys Lys Lys Ile Leu Phe Arg Asn Asp  
 545 550 555 560

Lys Leu Leu Leu Leu His Leu Leu Ser Tyr Leu Ile Val Phe Lys Leu  
 565 570 575  
 Ile Glu Arg Thr Asn Pro Asn Ser Ile Val Val Val Ser Lys Asp Gly  
 580 585 590  
 Leu Asp Tyr Val Ser Val Phe Ile Ala Gly Phe Ala Phe Phe Ser Arg  
 595 600 605  
 Glu Ala Phe Trp Asp Glu His Ser Leu Lys Leu Leu Thr Asn Val  
 610 615 620  
 Leu Ser Pro Thr Leu Val Ala Arg Asp Arg Leu Val Phe Val Ser His  
 625 630 635 640  
 Ile Glu Leu Leu Ser Lys Phe Val Asn Cys Leu Lys Lys Asn Arg Gln  
 645 650 655  
 Gly Phe Ser Ser Leu Lys Ser Phe Phe Lys Asp Asp Ile Glu Gly Trp  
 660 665 670  
 Glu Phe Thr Gly Tyr Leu His Glu Leu Thr Glu Val Ser His Lys His  
 675 680 685  
 Asn Leu  
 690  
 <210>1069  
 <211>367  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1069  
 Arg Met Leu Ile Trp Lys Arg His Leu Leu Thr Arg Phe Trp Phe Ala  
 1 5 10 15  
 Leu Thr Ser Leu Leu Val Leu Ala Leu Ile Phe Tyr Ala Ser Ile His  
 20 25 30  
 His Ser Leu His Thr Leu Lys Gly Ala Ser Thr Ala Ala Ser Gly Ala  
 35 40 45  
 Ser Val Lys Leu Ser Ile Leu Tyr Tyr Leu Ala Gln Ile Ser Leu Lys  
 50 55 60  
 Ala Glu Phe Leu Met Pro Gln Leu Val Ala Val Ala Thr Thr Ser Thr  
 65 70 75 80  
 Leu Phe Ala Met Gln Asn Lys Arg Glu Ile Ile Leu Leu Gln Ala Ser  
 85 90 95  
 Gly Leu Ser Leu Lys Ser Leu Met His Pro Leu Leu Leu Ser Gly Ala  
 100 105 110  
 Val Ile Met Met Val Leu Tyr Ala Asn Phe Gln Trp Leu His Pro Ile  
 115 120 125  
 Cys Glu Lys Ile Ser Ile Thr Lys Glu Asn Met Asp Arg Gly Thr Thr  
 130 135 140  
 Asp Lys Glu Gln Gly Lys Ile Pro Ala Leu Tyr Leu Lys Asp Gln Thr  
 145 150 155 160  
 Val Leu Leu Tyr Ser Ser Ile Glu Pro Lys Thr Leu Thr Leu Asn Asn  
 165 170 175  
 Val Phe Trp Ile Lys Asp Pro Lys Thr Ile Tyr Thr Met Glu Lys Leu  
 180 185 190  
 Ala Phe Thr Thr Leu Ser Leu Pro Ile Gly Leu Asn Val Thr Gln Phe  
 195 200 205  
 Phe Ala Asn Asp Ser Glu Asn Leu Glu Leu Lys Glu Phe Phe Asp Met  
 210 215 220  
 Lys Glu Phe Pro Glu Ile Glu Phe Asn Phe Tyr Glu Asn Pro Phe Ser  
 225 230 235 240  
 Lys Leu Phe Ser Ala Gly Asn Lys Asn Arg Leu Ser Glu Phe Phe Lys  
 245 250 255  
 Ala Ile Pro Trp Asn Ala Thr Gly Leu Gly Leu Ser Thr Gln Val Pro  
 260 265 270  
 Gln Arg Ile Leu Ser Leu Leu Ala Gln Phe Tyr Tyr Val Leu Ile Ser  
 275 280 285  
 Pro Leu Ala Cys Met Ala Ala Ile Ile Leu Ser Ala Tyr Leu Cys Leu  
 290 295 300  
 Arg Phe Ser Arg Thr Pro Thr Val Thr Leu Ala Tyr Leu Ile Pro Leu  
 305 310 315 320  
 Gly Thr Val Asn Ile Phe Phe Val Phe Leu Lys Ala Gly Ile Val Leu

325 330 335  
 Ala Ser Ser Ser Val Leu Pro Thr Leu Pro Val Met Ala Phe Pro Leu  
 340 345 350  
 Ile Val Leu Phe Leu Leu Thr Asn Tyr Ala Tyr Ala Lys Leu Gln  
 355 360 365  
 <210>1070  
 <211>358  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1070  
 Ala Met Pro Ile Leu Trp Lys Val Leu Ile Phe Arg Tyr Leu Lys Thr  
 1 5 10 15  
 Ala Ala Phe Cys Thr Leu Ser Leu Ile Cys Ile Ser Ile Ile Ser Ser  
 20 25 30  
 Leu Gln Glu Ile Val Ala Tyr Ile Ala Lys Asp Val Pro Tyr Asp Thr  
 35 40 45  
 Val Leu Arg Leu Met Ala Tyr Gln Ile Pro Tyr Leu Leu Pro Phe Ile  
 50 55 60  
 Leu Pro Gly Ser Cys Phe Val Ser Ala Phe Ser Leu Phe Arg Lys Leu  
 65 70 75 80  
 Ser Asp Asn Asn His Met Thr Phe Leu Arg Ala Ser Gly Ala Ser Gln  
 85 90 95  
 Ser Ile Ile Met Phe Pro Val Leu Met Val Ser Gly Ala Ile Cys Cys  
 100 105 110  
 Leu Asn Phe Tyr Thr Cys Ser Glu Leu Ala Ser Ile Cys Arg Tyr Gln  
 115 120 125  
 Thr Cys Lys Glu Ile Ala Asn Met Ala Met Thr Ser Pro Ala Leu Leu  
 130 135 140  
 Leu Gln Thr Leu Gln Lys Lys Glu Asn Asn Arg Ile Phe Ile Ala Val  
 145 150 155 160  
 Asp His Cys Ala Lys Ser Lys Phe Asp Asn Val Ile Val Ala Leu Lys  
 165 170 175  
 Gly Asn Asn Glu Ile Ser His Val Gly Ile Ile Lys Ser Ile Ile Pro  
 180 185 190  
 Asp Thr Thr Lys Asp Thr Val Lys Ala Lys Asp Val Val Phe Ile Ser  
 195 200 205  
 Lys Leu Pro Asp Ser Leu Thr Glu Ser Ser Ser Pro Ser Ser Gln Arg  
 210 215 220  
 Phe Tyr Ile Glu Thr Leu Asp Glu Leu Leu Ile Pro Lys Ile Thr Ser  
 225 230 235 240  
 Thr Leu Phe Ala Gly Lys Ser Tyr Leu Lys Thr Arg Thr Asp Tyr Leu  
 245 250 255  
 Pro Trp Lys Gln Leu Val Lys Gln Ser Leu Lys His Ser His Leu Pro  
 260 265 270  
 Glu Thr Leu Arg Arg Val Ala Ile Gly Phe Leu Cys Ile Thr Leu Thr  
 275 280 285  
 Tyr Ala Gly Met Ile Leu Gly Ile His Lys Pro Arg Phe Arg Lys Ser  
 290 295 300  
 Ile Ala Leu Tyr Phe Ile Phe Pro Ile Leu Asp Leu Ile Leu Leu Ile  
 305 310 315 320  
 Val Gly Lys Asn Thr Lys Asn Leu Pro Leu Ala Phe Met Leu Phe Val  
 325 330 335  
 Phe Pro Gln Leu Val Ser Trp Val Val Phe Ala Ala Arg Ala Tyr Arg  
 340 345 350  
 Glu Ser Arg Gly Tyr Ala  
 355  
 <210>1071  
 <211>319  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1071  
 Met Val Leu Ser Ser Asp Leu Leu Arg Asp Asp Lys Gln Leu Asp Leu  
 1 5 10 15  
 Phe Phe Ala Ser Leu Asp Val Lys Lys Arg Tyr Leu Leu Ala Leu Ser

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Ile | Ser | Leu | Val | Val | Lys | Phe | Met | Ser | Lys | Asp | Lys | Lys | Met | Lys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Pro | Glu | Pro | Lys | Lys | Asn | Phe | Pro | Thr | Val | Phe | Phe | Phe | Leu | Leu | Phe |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Gly | Val | Val | Phe | Gly | Val | Val | Ala | Phe | Gln | Asn | Phe | Leu | Ala | Gly | Lys |
|     |     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Lys | Ala | Arg | Val | Gly | Phe | Ser | His | Gln | Ile | Glu | His | Leu | Val | Asn | Leu |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Arg | Leu | Ile | Val | Pro | Glu | Asp | Ser | His | Lys | Ile | Ala | Leu | Asn | Asp | Asn |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Leu | Val | Ser | Phe | Gly | Gly | Arg | Phe | Arg | Asp | Val | Gln | Thr | Gln | Glu | Gly |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Gln | Leu | Arg | Tyr | His | Tyr | Leu | Glu | Leu | Ile | Asp | Gln | Gly | His | Arg | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Asp | Leu | Asp | Leu | Gln | Glu | Thr | Ser | Lys | Ser | Leu | Thr | Thr | Leu | Gly | Lys |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Glu | Val | Thr | Asn | Ser | Ile | Leu | Trp | Phe | Ser | Ala | Ile | Ser | Gly | Ser | Pro |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ile | Pro | Glu | Gln | Gly | Tyr | Ala | Ile | Ser | Tyr | Pro | Ser | Glu | Val | Ser | Gly |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Ser | Val | Leu | Thr | Glu | Pro | Leu | Val | Val | Thr | Gly | Pro | Ala | Thr | Pro | Gln |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |

Leu Ile Asn Leu His Ser Leu Gln Glu Arg Tyr Pro Thr Leu Ser Arg  
 180 185 190  
 Ser Pro Glu Ala Leu Arg Thr Tyr Gly Ser Asp Leu Tyr Glu Leu Ile  
 195 200 205  
 Gly Lys Tyr Leu Ser Pro Val Leu Gly Ile Gly Ser Glu Thr Leu Lys  
 210 215 220  
 Arg Glu Leu Lys Asp Leu Tyr Gln Gln Val Glu Val Ser Leu Thr Gln  
 225 230 235 240  
 Glu Thr Asp Thr Glu Ala Ala Tyr Thr Leu Tyr Gly Gln Val Leu Ser  
 245 250 255  
 Thr Leu Asn Arg Ile Ser Ser Ser Leu Val Val Ser Glu Gly Gly Glu  
 260 265 270  
 Arg Phe Ser Gln Leu Arg Ser Val Arg Leu Tyr Arg Glu Glu Trp Asn  
 275 280 285  
 Lys Tyr His Lys Leu Val Glu Ala Arg Asp Leu Asn Gln Ala Gln Leu  
 290 295 300  
 Glu Lys Leu Arg Gly Glu Leu Ser Gln Thr Val Trp Tyr Phe Asn Asn  
 305 310 315 320  
 Gln Glu Leu Ser Ser Arg Ser Leu Glu Lys Gln Asp Pro Glu Val Phe  
 325 330 335  
 Gly His Trp Phe Ala Gly Ala Lys Glu Glu Trp Thr Ala Phe Lys Phe  
 340 345 350  
 Asn His Ser Leu Ser Phe Lys Ala Pro Asp Gln Pro Arg Asn Leu Val  
 355 360 365  
 Leu Glu Lys Thr Phe Lys Ser Gln Glu Pro Ser Pro His Xaa Leu Gly  
 370 375 380  
 Tyr Leu Phe Thr Xaa Leu Pro Ile Ile Leu Val Leu Leu Phe Val Tyr  
 385 390 395 400  
 Leu Val Phe Ser Arg Gln Met Arg Gly Met Ser Gly Ser Ala Met Ser  
 405 410 415  
 Phe Gly Lys Ser Pro Ala Arg Met Leu Leu Lys Gly Gln Asn Lys Val  
 420 425 430  
 Thr Phe Ala Asp Val Ala Gly Ile Glu Glu Ala Lys Glu Glu Leu Ile  
 435 440 445  
 Glu Ile Val Asp Phe Leu Lys Asn Pro Asn Lys Phe Thr Ser Leu Gly  
 450 455 460  
 Gly Arg Ile Pro Lys Gly Val Leu Leu Ile Gly Pro Pro Gly Thr Gly  
 465 470 475 480  
 Lys Thr Leu Ile Ala Lys Ala Val Ser Gly Glu Ala Asp Arg Pro Phe  
 485 490 495  
 Phe Ser Ile Ala Gly Ser Asp Phe Val Glu Met Phe Val Gly Val Gly  
 500 505 510  
 Ala Ser Arg Ile Arg Asp Met Phe Glu Gln Ala Lys Arg Asn Ala Pro  
 515 520 525  
 Cys Ile Ile Phe Ile Asp Glu Ile Asp Ala Val Gly Arg His Arg Gly  
 530 535 540  
 Ala Gly Ile Gly Gly Gly His Asp Glu Arg Glu Gln Thr Leu Asn Gln  
 545 550 555 560  
 Leu Leu Val Glu Met Asp Gly Phe Gly Thr Asn Glu Gly Val Ile Leu  
 565 570 575  
 Met Ala Ala Thr Asn Arg Pro Asp Val Leu Asp Lys Ala Leu Leu Arg  
 580 585 590  
 Pro Gly Arg Phe Asp Arg Arg Val Val Met Asn Leu Pro Asp Ile Lys  
 595 600 605  
 Gly Arg Phe Glu Ile Leu Met Val His Ala Lys Arg Ile Lys Leu Asp  
 610 615 620  
 Pro Thr Val Asp Leu Met Ala Val Ala Arg Ser Thr Pro Gly Ala Ser  
 625 630 635 640  
 Gly Ala Asp Leu Glu Asn Leu Leu Asn Glu Ala Ala Leu Leu Ala Ala  
 645 650 655  
 Arg Lys Asp Arg Thr Ala Val Thr Ala Val Asp Val Ala Glu Ala Arg  
 660 665 670  
 Asp Lys Val Leu Tyr Gly Lys Glu Arg Arg Ser Leu Glu Met Asp Ala  
 675 680 685



Glu Glu Arg Lys Thr Thr Ala Tyr His Glu Ser Gly His Ala Val Val  
 690 695 700  
 Gly Leu Cys Val Gln His Gly Asp Pro Val Asp Lys Val Thr Ile Ile  
 705 710 715 720  
 Pro Arg Gly Leu Ser Leu Gly Ala Thr His Phe Leu Pro Glu Lys Asn  
 725 730 735  
 Lys Leu Ser Tyr Trp Lys Lys Glu Leu Tyr Asp Gln Leu Ala Val Leu  
 740 745 750  
 Met Gly Gly Arg Ala Ala Glu Glu Ile Phe Leu Gly Asp Ile Ser Ser  
 755 760 765  
 Gly Ala Gln Gln Asp Ile Ser Gln Ala Thr Lys Leu Val Arg Ser Met  
 770 775 780  
 Val Cys Glu Trp Gly Met Ser Pro Gln Leu Gly Asn Val Thr Tyr Asp  
 785 790 795 800  
 Glu Arg Ser Asp Gly Leu Thr Gly Tyr Gly Tyr His Glu Lys Ser  
 805 810 815  
 Tyr Ser Glu Glu Thr Ala Lys Thr Ile Asp Thr Glu Leu Arg Met Leu  
 820 825 830  
 Leu Asp Ala Ala Tyr Gln Arg Ala Leu Asp Ile Ile Asn Glu His Lys  
 835 840 845  
 Ala Glu Ile Glu Leu Met Thr Gln Met Leu Ile Glu Phe Glu Thr Leu  
 850 855 860  
 Asp Ser Lys Asp Val Lys Glu Ile Met Asp His Thr Trp Asp Pro Glu  
 865 870 875 880  
 Lys Lys Arg Ala Arg Leu Lys Glu Glu Gly Met Leu Phe Lys Lys Ser  
 885 890 895  
 Ser Asp Asp Leu Pro Pro Pro Pro Pro Lys Glu Asp Thr Leu Pro Gly  
 900 905 910  
 Leu Gly Phe Asn Ala Thr  
 915

&lt;210&gt;1073

&lt;211&gt;568

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1073

Ser Ser Cys Tyr Leu Arg Xaa Ser Ala Ala Leu Ala Ile Ser Asp Ile  
 1 5 10 15  
 Pro Gln Ser Asn Ile Val Ala Gly Val Arg Ile Gly Cys Ile Asp Asn  
 20 25 30  
 Gln Trp Val Ile Asn Pro Thr Lys Thr Glu Leu Ala Ser Ser Thr Leu  
 35 40 45  
 Asp Leu Val Leu Ala Gly Thr Glu Asn Ala Ile Leu Met Ile Glu Gly  
 50 55 60  
 His Cys Asp Phe Phe Thr Glu Glu Gln Val Leu Asp Ala Ile Glu Phe  
 65 70 75 80  
 Gly His Lys His Ile Val Thr Ile Cys Lys Arg Leu Gln Leu Trp Gln  
 85 90 95  
 Glu Glu Val Gly Lys Ser Lys Asn Leu Ser Ala Val Tyr Pro Leu Pro  
 100 105 110  
 Ala Glu Val Leu Thr Ala Val Lys Glu Cys Ala Gln Asp Lys Phe Thr  
 115 120 125  
 Glu Leu Phe Asn Ile Lys Asp Lys Lys Val His Ala Ala Thr Ala His  
 130 135 140  
 Glu Ile Glu Glu Asn Ile Leu Glu Lys Leu Gln Arg Glu Asp Asp Asp  
 145 150 155 160  
 Leu Phe Ser Ser Phe Asn Ile Lys Ala Ala Cys Lys Thr Leu Lys Ser  
 165 170 175  
 Asp Thr Met Arg Ala Leu Ile Arg Asp Arg Glu Ile Arg Ala Asp Gly  
 180 185 190  
 Arg Ser Leu Thr Thr Val Arg Pro Ile Thr Ile Glu Thr Ser Tyr Leu  
 195 200 205  
 Pro Arg Thr His Gly Ser Cys Leu Phe Thr Arg Gly Glu Thr Gln Thr  
 210 215 220  
 Leu Ala Val Cys Thr Leu Gly Ser Glu Ala Met Ala Gln Arg Tyr Glu

225 230 235 240  
 Asp Leu Asn Gly Glu Gly Leu Ser Lys Phe Tyr Leu Gln Tyr Phe Phe  
 245 250 255  
 Pro Pro Phe Ser Val Gly Glu Val Gly Arg Ile Gly Ser Pro Gly Arg  
 260 265 270  
 Arg Glu Ile Gly His Gly Lys Leu Ala Glu Lys Ala Leu Ser His Ala  
 275 280 285  
 Leu Pro Asp Ser Ala Thr Phe Pro Tyr Thr Ile Arg Ile Glu Ser Asn  
 290 295 300  
 Ile Thr Glu Ser Asn Gly Ser Ser Ser Met Ala Ser Val Cys Gly Gly  
 305 310 315 320  
 Cys Leu Ala Leu Met Asp Ala Gly Val Pro Ile Ser Ser Pro Ile Ala  
 325 330 335  
 Gly Ile Ala Met Gly Leu Ile Leu Asp Asp Gln Gly Ala Ile Ile Leu  
 340 345 350  
 Ser Asp Ile Ser Gly Leu Glu Asp His Leu Gly Asp Met Asp Phe Lys  
 355 360 365  
 Ile Ala Gly Ser Gly Lys Gly Ile Thr Ala Phe Gln Met Asp Ile Lys  
 370 375 380  
 Val Glu Gly Ile Thr Pro Ala Ile Met Lys Lys Ala Leu Ser Gln Ala  
 385 390 395 400  
 Lys Gln Gly Cys Asn Asp Ile Leu Asn Ile Met Asn Glu Ala Leu Ser  
 405 410 415  
 Ala Pro Lys Ala Asp Leu Ser Gln Tyr Ala Pro Arg Ile Glu Thr Met  
 420 425 430  
 Gln Ile Lys Pro Thr Lys Ile Ala Ser Val Ile Gly Pro Gly Gly Lys  
 435 440 445  
 Gln Ile Arg Gln Ile Ile Glu Glu Thr Gly Val Gln Ile Asp Val Asn  
 450 455 460  
 Asp Leu Gly Val Val Ser Ile Ser Ala Ser Ser Ala Ser Ala Ile Asn  
 465 470 475 480  
 Lys Ala Lys Glu Ile Ile Glu Gly Leu Val Gly Glu Val Glu Val Gly  
 485 490 495  
 Lys Thr Tyr Arg Gly Arg Val Thr Ser Val Val Ala Phe Gly Ala Phe  
 500 505 510  
 Val Glu Val Leu Pro Gly Lys Glu Gly Leu Cys His Ile Ser Glu Cys  
 515 520 525  
 Ser Arg Gln Arg Ile Glu Asn Ile Ser Asp Val Val Lys Glu Gly Asp  
 530 535 540  
 Ile Ile Asp Val Lys Leu Leu Ser Ile Asn Glu Lys Gly Gln Leu Lys  
 545 550 555 560  
 Leu Ser His Lys Ala Thr Leu Glu  
 565

&lt;210&gt;1074

&lt;211&gt;127

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1074

Ser Asp Arg Ser Lys Ile Leu Val Phe Glu Thr Gly Lys Ile Ala Arg  
 1 5 10 15  
 Gln Ala Asn Gly Ala Val Leu Val Arg Ser Gly Glu Thr Cys Val Phe  
 20 25 30  
 Ala Ser Ala Cys Ala Val Asp Leu Asp Asp Lys Val Asp Phe Leu Pro  
 35 40 45  
 Leu Arg Val Asp Tyr Gln Glu Lys Phe Ser Ser Thr Gly Lys Thr Leu  
 50 55 60  
 Gly Gly Phe Ile Lys Arg Glu Gly Arg Pro Ser Glu Lys Glu Ile Leu  
 65 70 75 80  
 Val Ser Arg Leu Ile Asp Arg Ser Leu Arg Pro Ser Phe Pro Tyr Arg  
 85 90 95  
 Leu Met Gln Asp Val Gln Val Leu Ser Tyr Val Trp Ser Tyr Asp Gly  
 100 105 110  
 Gln Val Leu Pro Asp Pro Leu Ala Ile Cys Ala Xaa Leu Leu Leu  
 115 120 125

&lt;210&gt;1075

&lt;211&gt;163

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1075

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Leu Gly Gly Glu Lys Leu Ile Asn Met Glu Lys Asp Ile Phe Phe Met
 1           5           10           15
Gln Gln Ala Phe Lys Glu Ala Arg Lys Ala Tyr Asp Gln Asp Glu Val
      20           25           30
Pro Val Gly Cys Val Ile Val Lys Asp Asp Lys Ile Ile Ala Arg Ala
      35           40           45
His Asn Ser Val Glu Lys Leu Lys Asp Ala Thr Ala His Ala Glu Ile
      50           55           60
Leu Cys Ile Gly Ser Ala Ala Gln Asp Leu Asp Asn Trp Arg Leu Leu
      65           70           75           80
Asp Thr Val Leu Tyr Cys Thr Leu Glu Pro Cys Leu Met Cys Ala Gly
      85           90           95
Ala Ile Gln Leu Ala Arg Ile Pro Arg Ile Val Trp Ala Ala Pro Asp
      100           105           110
Val Arg Leu Gly Ala Gly Gly Ser Trp Val Asn Ile Phe Thr Glu Glu
      115           120           125
His Pro Phe His Thr Val Ser Cys Thr Gly Gly Val Cys Ser Glu Glu
      130           135           140
Ala Glu His Leu Met Lys Lys Phe Phe Val Glu Lys Arg Arg Glu Lys
      145           150           155           160
Ser Glu Lys

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&lt;210&gt;1076

&lt;211&gt;100

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1076

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Lys Ser Ala Glu Arg Lys Val Lys Asn Lys Ile Val Thr Leu Leu Asp
 1           5           10           15
Gln Leu Tyr Glu Asp Gln Glu Ser Arg Leu Gln Lys Leu Gly Glu Glu
      20           25           30
Ile Val Pro Asn Leu Thr Pro Glu Asp Leu Leu Gln Pro Met Asp Phe
      35           40           45
Xaa Gln Leu Glu Gly Asn Pro Ala Phe Arg Phe Glu Glu Gly Val Leu
      50           55           60
Ser Gly Ile Gly Glu Val Arg Ala Ala Ile Phe Asn Gly Ala Leu Ser
      65           70           75           80
Arg Glu Leu Glu Ser Gln Arg Ser Ser Ile Gly Val Gly Asp Leu Phe
      85           90           95
Phe Phe Thr Lys
      100

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&lt;210&gt;1077

&lt;211&gt;180

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1077

```

His Leu Ser Ile Glu Glu Leu Met Ser Ile Gln Pro Val Ser Asn Thr
 1           5           10           15
Thr Thr Lys Ala Asp Lys Val Ile Pro Asp Ser Thr Lys Val Ile Ser
      20           25           30
Asp Ser Ile Thr Ile Asn Lys Gln Ser Ala Phe Tyr Phe Cys Ile Ser
      35           40           45
Val Met Leu Arg Leu Ser Glu Ser Thr Thr Glu Tyr Gly Lys Ser Ile
      50           55           60
Leu Ala Val Leu Glu Asp Asn Thr Ile Val Gln Gln Arg Val Lys
      65           70           75           80
Glu Leu Ile Asn Leu Pro Leu Leu Lys Val Pro Asp Leu Gln Lys Lys
      85           90           95
Asp Gly Ser Asp Asp Glu Tyr Lys Asn Gln Asn Glu Ile Gln Ala Tyr

```

100 105 110  
 Gln Ser Ser Asn Gln Gln Ile Ser Ala Asn Arg Gln Met Ile Gln Gln  
 115 120 125  
 Glu Leu Ser Ser Ala Gln Gln Arg Ala Gln Ala Asn Gln Lys Ser Val  
 130 135 140  
 Asn Ser Thr Thr Ile Glu Ser Met Gln Ile Leu Gln Ala Thr Ser Ser  
 145 150 155 160  
 Met Leu Ser Thr Leu Lys Glu Leu Thr Ile Lys Ala Asn Leu Thr Asn  
 165 170 175  
 Ser Pro Ser Asp  
 180

&lt;210&gt;1078

&lt;211&gt;181

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1078

Asn Arg Lys Pro Val Arg Leu Asn Met Trp Ile Ile Asp Pro Leu Ser  
 1 5 10 15  
 Ala Lys Xaa Pro Leu Gln Ala Ala Ile Asn Val Pro Gly Thr Pro Ile  
 20 25 30  
 Thr Gly Gly Pro Asn Thr Ala Thr Ala Asp Asp Ile Ile Ala Lys Phe  
 35 40 45  
 Ser Lys Asp Ser Asn Pro Leu Ile Val Thr Val Tyr Tyr Val Tyr Gln  
 50 55 60  
 Ser Val Leu Val Ala Gln Asp Asn Leu Ser Ile Ile Ala Gln Glu Leu  
 65 70 75 80  
 Gln Ala Asn Ser Ser Ala Gln Thr Tyr Leu Asn Asn Gln Glu Ala Leu  
 85 90 95  
 Tyr Gln Tyr Val Ser Ile Pro Lys Asn Lys Leu Asn Asp Asn Ser Ser  
 100 105 110  
 Ser Tyr Leu Gln Asn Ile Gln Ser Asp Asn Gln Ala Ile Gly Ala Ser  
 115 120 125  
 Arg Gln Ala Ile Gln Asn Gln Ile Ser Ser Leu Gly Asn Ala Ala Gln  
 130 135 140  
 Val Ile Ser Ser Asn Leu Asn Thr Asn Asn Asn Ile Ile Gln Gln Ser  
 145 150 155 160  
 Leu Gln Val Gly Gln Ala Leu Ile Gln Thr Phe Ser Gln Ile Val Ser  
 165 170 175  
 Leu Ile Ala Asn Ile  
 180

&lt;210&gt;1079

&lt;211&gt;168

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1079

Thr Lys Val Asn Phe Phe Ile Met Ser Ile Thr Thr Leu Gly Thr Leu  
 1 5 10 15  
 Pro Thr Val Asn Thr Ile Asn Ser Ser Arg Pro Pro Leu Glu Pro Leu  
 20 25 30  
 Asn Thr Pro Lys Ile Gly Ala Val Leu Phe Ser Ile Tyr Glu Leu Leu  
 35 40 45  
 Leu Gln Ala Ile Glu Ile Arg Gln Gln Thr Val Leu Thr Gln Ser Gln  
 50 55 60  
 Gln Leu Asn Asp Asn Thr Asn Ile Gln Gln Gln Leu Asn Gln Glu Thr  
 65 70 75 80  
 Asn Gln Ile Lys Tyr Ala Ile Val Ser Ala Gly Ala Lys Glu Asp Glu  
 85 90 95  
 Ile Thr Arg Val Gln Asn Gln Asn Gln Asn Tyr Ser Ala Gln Arg Ser  
 100 105 110  
 Asn Ile Gln Asp Glu Leu Val Thr Thr Arg Gln Asn Gly Gln Ile Ile  
 115 120 125  
 Leu Ser His Ala Ser Thr Asn Ile Asn Ile Ile Gln Gln Gln Ser Ser  
 130 135 140  
 Gln Asp Ser Ser Phe Ile Lys Thr Thr Asn Ser Ile Gly Ser Thr Val

1091

&lt;210&gt;1081

&lt;211&gt;294

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1081

Val Ile Leu Met Lys Arg Asn Asp Pro Cys Trp Cys Gly Ser Gly Arg  
 1 5 10 15  
 Lys Trp Lys Gln Cys His Tyr Pro Gln Pro Pro Lys Met Ser Pro Glu  
 20 25 30  
 Ala Leu Lys Gln His Tyr Ala Ser Gln Tyr Asn Ile Leu Leu Lys Thr  
 35 40 45  
 Pro Glu Gln Lys Ala Lys Ile Tyr Asn Ala Cys Gln Ile Thr Ala Arg  
 50 55 60  
 Ile Leu Asp Glu Leu Cys Lys Ala Ser Gln Lys Gly Val Thr Thr Asn  
 65 70 75 80  
 Glu Leu Asp Glu Leu Ser Gln Glu Leu His Lys Lys Tyr Asp Ala Ile  
 85 90 95  
 Ala Ala Pro Phe His Tyr Gly Ser Pro Pro Phe Pro Lys Thr Ile Cys  
 100 105 110  
 Thr Ser Leu Asn Glu Val Ile Cys His Gly Ile Pro Asn Asp Ile Pro  
 115 120 125  
 Leu Lys Asp Gly Asp Ile Met Asn Ile Asp Val Ser Cys Ile Val Asp  
 130 135 140  
 Gly Tyr Tyr Gly Asp Cys Ser Arg Met Val Met Ile Gly Glu Val Pro  
 145 150 155 160  
 Glu Ile Lys Lys Lys Ile Cys Gln Ala Ala Leu Glu Cys Leu Asn Asp  
 165 170 175  
 Ser Ile Ala Ile Leu Lys Pro Gly Ile Pro Leu Cys Glu Ile Gly Glu  
 180 185 190  
 Ala Ile Glu Ala Arg Ala Asp Thr Tyr Gly Phe Ser Val Val Asp Gln  
 195 200 205  
 Phe Val Gly His Gly Val Gly Ile Glu Phe His Glu Asn Pro Tyr Val  
 210 215 220  
 Pro His Tyr Arg Asn Arg Ser Met Ile Pro Leu Ala Pro Gly Met Ile  
 225 230 235 240  
 Phe Thr Ile Glu Pro Met Ile Asn Val Gly Lys Lys Glu Gly Val Val  
 245 250 255  
 Asp Pro Lys Asn Gln Trp Glu Ala Arg Thr Cys Asp Asn Gln Pro Ser  
 260 265 270  
 Ala Gln Trp Glu His Thr Ile Ala Ile Thr Glu Thr Gly Tyr Glu Ile  
 275 280 285  
 Leu Thr Leu Leu Asn Asp  
 290

&lt;210&gt;1082

&lt;211&gt;202

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1082

Met Leu Ile Leu Leu Asn Leu Ser Leu Leu Phe Tyr Val Leu Phe Asp  
 1 5 10 15  
 Ser Pro Gly Ser Ile Pro Val Phe Val Ala Leu Leu Lys Asn Phe Ser  
 20 25 30  
 Arg Lys Lys Gln Gln Arg Val Ile Leu Arg Glu Cys Leu Phe Ala Leu  
 35 40 45  
 Gly Ala Leu Ile Leu Phe Val Thr Phe Gly Arg Ser Phe Phe Gln Phe  
 50 55 60  
 Leu Asp Ile Ser Leu Tyr Ala Phe Gln Ile Ile Gly Gly Phe Leu Leu  
 65 70 75 80  
 Phe Thr Val Ser Ile Lys Met Met Leu Ala Pro Met Pro Glu Lys Ala  
 85 90 95  
 Lys Asp Asp Thr Ser Lys Thr Glu Pro Ile Phe Phe Pro Leu Ala Phe  
 100 105 110  
 Pro Val Ile Thr Gly Pro Ala Val Ile Thr Ala Leu Leu Ser Tyr Met  
 115 120 125

Glu Glu Gly Ile Tyr Ser Arg Glu Ile Ile Phe Thr Ala Met Ile Ile  
 130 135 140  
 Ala Trp Ala Phe Ser Leu Phe Thr Leu Leu Cys Ser Ser Phe Phe Asp  
 145 150 155 160  
 Arg Leu Ser Gly Asn Phe Gly Leu Leu Ala Leu Glu Arg Leu Phe Gly  
 165 170 175  
 Ile Ala Leu Leu Leu Met Ser Val Asn Leu Met Leu Lys Gly Ile Ser  
 180 185 190  
 Ile Ala Phe Asn Ile Gly Phe Tyr Ile Gly  
 195 200

&lt;210&gt;1083

&lt;211&gt;251

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1083

Thr Ser Arg Tyr Gly Pro Leu Pro Cys Ser Arg His His Glu Asp Leu  
 1 5 10 15  
 His Lys Arg His Ala Asn Thr Asn Arg Arg Glu Ile Asp Arg Gln Phe  
 20 25 30  
 Pro Ala Arg Phe Leu Tyr Arg Ser Gln Asp Pro Ile Tyr Lys Phe Glu  
 35 40 45  
 Asp Leu Asn Gly Lys Val Leu Gly Phe Cys Leu Asn Asn Ser Arg Asp  
 50 55 60  
 Leu Asn Arg Leu Leu Glu Thr Leu Asn Arg Asn Gly Val Val Pro Ser  
 65 70 75 80  
 Glu Val Lys Asn Val Ser Ser Asp Leu Ile Ser Pro Met Leu Leu Asn  
 85 90 95  
 Lys Ile Asp Phe Leu Tyr Gly Ala Phe Tyr Asn Ile Glu Gly Val Lys  
 100 105 110  
 Leu Gln Thr Leu Gly Met Pro Val Lys Cys Phe Leu Ser Asp Thr Cys  
 115 120 125  
 Asp Leu Pro Thr Gly Pro Gln Leu Ile Val Phe Thr Lys Lys Gly Thr  
 130 135 140  
 Lys Ala Ser Glu Pro Glu Ile Val Glu Ala Phe Gln Lys Ala Leu Gln  
 145 150 155 160  
 Glu Ser Ile Ile Phe Ser Lys Asp His Pro Glu Asp Ala Phe Lys Leu  
 165 170 175  
 Tyr Ala Lys Glu Thr Lys Ser Ile Pro Lys Asn Leu Tyr Gln Glu Tyr  
 180 185 190  
 Leu Gln Trp Glu Glu Thr Phe Pro Leu Leu Ala Gln Ser Gln Asp Pro  
 195 200 205  
 Leu Ser Lys Asp Leu Val Asp Lys Leu Leu Glu Thr Ile Ile Lys Arg  
 210 215 220  
 Tyr Pro Glu Leu Ala Ser Glu Val Ala Lys Phe Ser Leu Asn Asp Leu  
 225 230 235 240  
 Tyr Asn Pro Ser Leu Pro Glu Glu Gln Ser Val  
 245 250

&lt;210&gt;1084

&lt;211&gt;303

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1084

Arg Ser Pro Thr Thr Ser Phe His Pro Ala Thr Val His Ser Tyr Val  
 1 5 10 15  
 Cys Ser Gly Ser Thr Asp Cys Thr Leu Val Trp Leu Gly Asn Arg Cys  
 20 25 30  
 Cys Asn Arg Pro Tyr Ser Thr His His Ile Leu Ser Ala His Pro Asp  
 35 40 45  
 Tyr Leu Ser Gly His Leu Ile Asn Thr Arg Arg Thr Tyr Arg Ala Ile  
 50 55 60  
 Arg Pro Leu Arg Ser Thr Lys Phe Gln Leu Leu Ile Lys Leu Arg Ile  
 65 70 75 80  
 Pro His Ala Leu Pro His Ile Phe Ser Gly Leu Lys Ile Ala Ile Gly  
 85 90 95

Ser Ala Gly Phe Ala Ala Ile Ala Gly Glu Trp Val Ala Ser Gln Ser  
 100 105 110  
 Gly Leu Gly Ile Leu Met Leu Glu Ser Arg Arg Asn Tyr Glu Met Glu  
 115 120 125  
 Leu Ala Phe Ala Gly Leu Ala Thr Leu Ser Ile Leu Thr Leu Ser Leu  
 130 135 140  
 Phe Gln Ile Thr Leu Leu Ile Glu Lys Leu Ile Phe Ser Leu Phe Arg  
 145 150 155 160  
 Val Lys Arg Met Ser Leu Lys His Lys Ser Val Ala Lys Lys Ala Leu  
 165 170 175  
 Ser Val Leu Ala Leu Ile Pro Ile Met Leu Ile Pro Trp Lys Gly Asn  
 180 185 190  
 Ser Lys Ser Pro Pro Asp Lys Lys Asn Leu Thr Ser Leu Thr Leu Leu  
 195 200 205  
 Leu Asp Trp Thr Pro Asn Pro Asn His Ile Pro Leu Tyr Ala Gly Val  
 210 215 220  
 Ala Lys Gly Tyr Phe Lys Gln His Gly Leu Asp Leu Gln Leu Gln Lys  
 225 230 235 240  
 Asn Thr Asp Ser Ser Ser Ala Val Pro His Val Leu Phe Glu Gln Val  
 245 250 255  
 Asp Met Ala Leu Tyr His Ala Leu Gly Ile Met Lys Thr Ser Ile Lys  
 260 265 270  
 Gly Met Pro Ile Gln Ile Val Gly Arg Leu Ile Asp Ser Ser Leu Gln  
 275 280 285  
 Asp Phe Ser Thr Glu Val Arg Thr Pro Ser Thr Asn Leu Lys Thr  
 290 295 300

&lt;210&gt;1085

&lt;211&gt;460

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1085

Met Arg Gln Glu Lys Asp Ser Leu Gly Ile Val Glu Val Pro Glu Asp  
 1 5 10 15  
 Lys Leu Tyr Gly Ala Gln Thr Met Arg Ser Arg Asn Phe Phe Ser Trp  
 20 25 30  
 Gly Pro Glu Leu Met Pro Tyr Glu Val Ile Arg Ala Leu Val Trp Ile  
 35 40 45  
 Lys Lys Cys Ala Ala Gln Ala Asn Gln Asp Leu Gly Phe Leu Asp Ser  
 50 55 60  
 Lys His Cys Asp Met Ile Val Ala Ala Ala Asp Glu Ile Leu Glu Gly  
 65 70 75 80  
 Gly Phe Glu Glu His Phe Pro Leu Lys Val Trp Gln Thr Gly Ser Gly  
 85 90 95  
 Thr Gln Ser Asn Met Asn Val Asn Glu Val Ile Ala Asn Leu Ala Ile  
 100 105 110  
 Arg His His Gly Gly Val Leu Gly Ser Lys Asp Pro Ile His Pro Asn  
 115 120 125  
 Asp His Val Asn Lys Ser Gln Ser Ser Asn Asp Val Phe Pro Thr Ala  
 130 135 140  
 Met His Ile Ala Ala Val Ile Ser Leu Lys Asn Lys Leu Ile Pro Ala  
 145 150 155 160  
 Leu Asp His Met Ile Arg Val Leu Asp Ala Lys Val Glu Glu Phe Arg  
 165 170 175  
 His Asp Val Lys Ile Gly Arg Thr His Leu Met Asp Ala Val Pro Met  
 180 185 190  
 Thr Leu Gly Gln Glu Phe Ser Gly Tyr Ser Ser Gln Leu Arg His Cys  
 195 200 205  
 Leu Glu Ser Ile Ala Phe Ser Leu Ala His Leu Tyr Glu Leu Ala Ile  
 210 215 220  
 Gly Ala Thr Ala Val Gly Thr Gly Leu Asn Val Pro Glu Gly Phe Val  
 225 230 235 240  
 Glu Lys Ile Ile His Tyr Leu Arg Lys Xaa Thr Asp Glu Pro Phe Ile  
 245 250 255  
 Pro Ala Xaa Asn Tyr Phe Ser Ala Leu Ser Cys His Asp Ala Leu Val



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 caaggggtgt agagaaagga 20  
 <210>1408  
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 <212>DNA  
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 gaagacaaac cttgtcctgg 20

Thr Val Met Thr Thr Ile Thr Ala Ala Val Gln Val Gly Met Met Leu  
 275 280 285  
 Ala Ala Phe Leu Phe Met Lys Gln Met Ser Asp Leu Ser Asp Val Ile  
 290 295 300  
 Ser Thr Ala Lys Tyr Phe Asp Lys Asp Ser Asp Phe Leu Ser Lys Ala  
 305 310 315 320  
 Glu Val Pro Gln Asn Thr Glu Ile Tyr Glu Ile Asn Gly Pro Phe Phe  
 325 330 335  
 Phe Gly Ile Ala Asp Arg Leu Lys Asn Leu Leu Asn Asp Ile Glu Lys  
 340 345 350  
 Pro Pro Lys Ile Phe Ile Leu Cys Met Thr Arg Val Pro Thr Ile Asp  
 355 360 365  
 Ala Ser Ala Met His Ala Leu Glu Glu Phe Phe Leu Glu Cys Asp Arg  
 370 375 380  
 Gln Gly Thr Leu Leu Leu Leu Ala Gly Val Lys Lys Thr Pro Leu Ala  
 385 390 395 400  
 Asp Leu Lys Arg Tyr His Leu Asp Glu Leu Ile Gly Val Asp His Ile  
 405 410 415  
 Phe Ser Asn Ile Lys Ser Ala Leu Leu Phe Ala Gln Ala Leu Thr Asn  
 420 425 430  
 Leu Glu Ser Lys Thr Ser Thr Arg His Leu Val  
 435 440

&lt;210&gt;1087

&lt;211&gt;143

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1087

Lys Asn Phe Ile Pro Lys Leu Tyr Thr Ser Ile Lys Glu Gly Tyr Ser  
 1 5 10 15  
 Phe Asn Thr Phe Lys Lys Asp Phe Gln Ala Gly Ile Thr Val Gly Ile  
 20 25 30  
 Leu Ala Phe Pro Phe Ala Ile Ala Ile Ala Ile Gly Val Gly Val Ser  
 35 40 45  
 Pro Ile Gln Gly Leu Leu Ala Ser Ile Ile Gly Gly Leu Leu Ala Ser  
 50 55 60  
 Ala Met Gly Gly Ser Asn Val Leu Ile Ser Gly Pro Ser Ser Ala Phe  
 65 70 75 80  
 Ile Ser Ile Leu Tyr Cys Leu Ser Ala Lys Tyr Gly Ala Glu Ala Leu  
 85 90 95  
 Phe Thr Val Thr Leu Leu Ala Gly Val Phe Leu Ile Ala Phe Gly Leu  
 100 105 110  
 Thr Gly Leu Gly Thr Phe Ile Lys Tyr Met Pro Tyr Pro Val Val Thr  
 115 120 125  
 Gly Leu Thr His Arg Thr Cys Asp His Tyr Ile Leu Leu Ala Asn  
 130 135 140

&lt;210&gt;1088

&lt;211&gt;422

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1088

Val Thr Met Leu Lys Leu Gln Leu Cys Ala Leu Phe Leu Phe Gly Tyr  
 1 5 10 15  
 Leu Ala Ile Val Phe Glu His Ile Val Arg Val Asn Lys Ser Ala Ile  
 20 25 30  
 Ala Leu Ala Met Gly Gly Leu Met Trp Leu Val Cys Phe Ser His Ile  
 35 40 45  
 Pro Met Ala Asp His Met Ile Leu Val Glu Glu Ile Ala Asp Met Ser  
 50 55 60  
 Gln Val Ile Phe Phe Leu Phe Ser Ala Met Ala Ile Val Glu Leu Ile  
 65 70 75 80  
 Asp Ala His Lys Gly Phe Ser Val Ile Val Lys Phe Cys Arg Ile Gln  
 85 90 95  
 Ser Arg Thr Leu Leu Leu Trp Ala Leu Ile Gly Leu Ser Phe Phe Leu  
 100 105 110

Ser Ala Ala Leu Asp Asn Leu Thr Ser Ile Ile Ile Ile Ile Ser Ile  
 115 120 125  
 Leu Lys Arg Leu Val Lys Ala Arg Glu Asp Arg Leu Leu Leu Gly Ala  
 130 135 140  
 Ile Cys Val Ile Ala Val Asn Ala Gly Gly Ala Trp Thr Pro Leu Gly  
 145 150 155 160  
 Asp Val Thr Thr Thr Met Leu Trp Ile Asn Asn Lys Ile Thr Ser Trp  
 165 170 175  
 Gly Ile Ile Arg Ala Leu Phe Val Pro Ser Leu Val Cys Val Leu Val  
 180 185 190  
 Ala Gly Phe Cys Gly Gln Phe Phe Leu Arg Lys Arg Gly Ser Thr Leu  
 195 200 205  
 Ile Ala Lys Asp Val Glu Leu Gln Ser Ala Pro Pro Lys Ser Leu Trp  
 210 215 220  
 Ile Ile Phe Ile Gly Leu Gly Ser Leu Leu Met Val Pro Val Trp Lys  
 225 230 235 240  
 Ala Cys Leu Gly Leu Pro Pro Phe Met Gly Ala Leu Leu Gly Leu Gly  
 245 250 255  
 Leu Val Trp Leu Thr Ser Asp Trp Ile His Ser Pro His Gly Glu Asp  
 260 265 270  
 Arg Tyr His Leu Arg Val Pro His Ile Leu Thr Lys Ile Asp Ile Ser  
 275 280 285  
 Ser Ile Thr Phe Phe Ile Gly Ile Leu Leu Ala Val Asn Ala Leu Ser  
 290 295 300  
 Phe Ala Asn Leu Leu Thr Asp Phe Ser Leu Trp Met Asp Lys Ile Phe  
 305 310 315 320  
 Ser Arg Asn Val Val Ala Ile Val Ile Gly Leu Leu Ser Ser Val Leu  
 325 330 335  
 Asp Asn Val Pro Leu Val Ala Xaa Thr Met Gly Met Tyr Thr Leu Pro  
 340 345 350  
 Leu Asp Asp Thr Leu Trp Lys Leu Ile Ala Tyr Ala Ala Xaa Thr Gly  
 355 360 365  
 Gly Ser Ile Leu Ile Ile Gly Ser Ala Ala Gly Val Ala Phe Met Gly  
 370 375 380  
 Leu Glu Lys Val Asp Phe Leu Trp Tyr Phe Lys Arg Ile Ser Trp Ile  
 385 390 395 400  
 Ala Leu Ala Ser Tyr Phe Gly Gly Leu Phe Ser Tyr Phe Val Leu Glu  
 405 410 415  
 Ser Leu Asn Phe Phe Ile  
 420

&lt;210&gt;1089

&lt;211&gt;624

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1089

Lys Arg Glu Val Phe Met Lys Lys Gly Lys Leu Gly Ala Ile Val Phe  
 1 5 10 15  
 Gly Leu Leu Phe Thr Ser Ser Val Ala Gly Phe Ser Lys Asp Leu Thr  
 20 25 30  
 Lys Asp Asn Ala Tyr Gln Asp Leu Asn Val Ile Glu His Leu Ile Ser  
 35 40 45  
 Leu Lys Tyr Ala Pro Leu Pro Trp Lys Glu Leu Leu Phe Gly Trp Asp  
 50 55 60  
 Leu Ser Gln Gln Thr Gln Gln Ala Arg Leu Gln Leu Val Leu Glu Glu  
 65 70 75 80  
 Lys Pro Thr Thr Asn Tyr Cys Gln Lys Val Leu Ser Asn Tyr Val Arg  
 85 90 95  
 Ser Leu Asn Asp Tyr His Ala Gly Ile Thr Phe Tyr Arg Thr Glu Ser  
 100 105 110  
 Ala Tyr Ile Pro Tyr Val Leu Lys Leu Ser Glu Asp Gly His Val Phe  
 115 120 125  
 Val Val Asp Val Gln Thr Ser Gln Gly Asp Ile Tyr Leu Gly Asp Glu  
 130 135 140  
 Ile Leu Glu Val Asp Gly Met Gly Ile Arg Glu Ala Ile Glu Ser Leu

145 150 155 160  
 Arg Phe Gly Arg Gly Ser Ala Thr Asp Tyr Ser Ala Ala Val Arg Ser  
 165 170 175  
 Leu Thr Ser Arg Ser Ala Ala Phe Gly Asp Ala Val Pro Ser Gly Ile  
 180 185 190  
 Ala Met Leu Lys Leu Arg Arg Pro Ser Gly Leu Ile Arg Ser Thr Pro  
 195 200 205  
 Val Arg Trp Arg Tyr Thr Pro Glu His Ile Gly Asp Phe Ser Leu Val  
 210 215 220  
 Ala Pro Leu Ile Pro Glu His Lys Pro Gln Leu Pro Thr Gln Ser Cys  
 225 230 235 240  
 Val Leu Phe Arg Ser Gly Val Asn Ser Gln Ser Ser Ser Ser Ser Leu  
 245 250 255  
 Phe Ser Ser Tyr Met Val Pro Tyr Phe Trp Glu Glu Leu Arg Val Gln  
 260 265 270  
 Asn Lys Gln Arg Phe Asp Ser Asn His His Ile Gly Ser Arg Asn Gly  
 275 280 285  
 Phe Leu Pro Thr Phe Gly Pro Ile Leu Trp Glu Gln Asp Lys Gly Pro  
 290 295 300  
 Tyr Arg Ser Tyr Ile Phe Lys Ala Lys Asp Ser Gln Gly Asn Pro His  
 305 310 315 320  
 Arg Ile Gly Phe Leu Arg Ile Ser Ser Tyr Val Trp Thr Asp Leu Glu  
 325 330 335  
 Gly Leu Glu Glu Asp His Lys Asp Ser Pro Trp Glu Leu Phe Gly Glu  
 340 345 350  
 Ile Ile Asp His Leu Glu Lys Glu Thr Asp Ala Leu Ile Ile Asp Gln  
 355 360 365  
 Thr His Asn Pro Gly Gly Ser Val Phe Tyr Leu Tyr Ser Leu Leu Ser  
 370 375 380  
 Met Leu Thr Asp His Pro Leu Asp Thr Pro Lys His Arg Met Ile Phe  
 385 390 395 400  
 Thr Gln Asp Glu Val Ser Ser Ala Leu His Trp Gln Asp Leu Leu Glu  
 405 410 415  
 Asp Val Phe Thr Asp Glu Gln Ala Val Ala Val Leu Gly Glu Thr Met  
 420 425 430  
 Glu Gly Tyr Cys Met Asp Met His Ala Val Ala Ser Leu Gln Asn Phe  
 435 440 445  
 Ser Gln Ser Val Leu Ser Ser Trp Val Ser Gly Asp Ile Asn Leu Ser  
 450 455 460  
 Lys Pro Met Pro Leu Leu Gly Phe Ala Gln Val Arg Pro His Pro Lys  
 465 470 475 480  
 His Gln Tyr Thr Lys Pro Leu Phe Met Leu Ile Asp Glu Asp Asp Phe  
 485 490 495  
 Ser Cys Gly Asp Leu Ala Pro Ala Ile Leu Lys Asp Asn Gly Arg Ala  
 500 505 510  
 Thr Leu Ile Gly Lys Pro Thr Ala Gly Ala Gly Gly Phe Val Phe Gln  
 515 520 525  
 Val Thr Phe Pro Asn Arg Ser Gly Ile Lys Gly Leu Ser Leu Thr Gly  
 530 535 540  
 Ser Leu Ala Val Arg Lys Asp Gly Glu Phe Ile Glu Asn Leu Gly Val  
 545 550 555 560  
 Ala Pro His Ile Asp Leu Gly Phe Thr Ser Arg Asp Leu Gln Thr Ser  
 565 570 575  
 Arg Phe Thr Asp Tyr Val Glu Ala Val Lys Thr Ile Val Leu Thr Ser  
 580 585 590  
 Leu Ser Glu Asn Ala Lys Lys Ser Glu Glu Gln Thr Ser Pro Gln Glu  
 595 600 605  
 Thr Pro Glu Val Ile Arg Val Ser Tyr Pro Thr Thr Thr Ser Ala Leu  
 610 615 620

&lt;210&gt;1090

&lt;211&gt;310

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1090

Met Arg Lys Leu Ile Leu Cys Asn Pro Arg Gly Phe Cys Ser Gly Val  
 1 5 10 15  
 Val Arg Ala Ile Gln Val Val Glu Val Ala Leu Glu Lys Trp Gly Ala  
 20 25 30  
 Pro Ile Tyr Val Lys His Glu Ile Val His Asn Arg His Val Val Asn  
 35 40 45  
 Ala Leu Arg Ala Lys Gly Ala Ile Phe Val Glu Glu Leu Val Asp Val  
 50 55 60  
 Pro Glu Gly Glu Arg Val Ile Tyr Ser Ala His Gly Ile Pro Pro Ser  
 65 70 75 80  
 Val Arg Ala Glu Ala Lys Ala Arg Lys Leu Ile Asp Ile Asp Ala Thr  
 85 90 95  
 Cys Gly Leu Val Thr Lys Val His Ser Ala Ala Lys Leu Tyr Ala Ser  
 100 105 110  
 Lys Gly Tyr Lys Ile Ile Leu Ile Gly His Lys Lys His Val Glu Val  
 115 120 125  
 Ile Gly Ile Val Gly Glu Val Pro Glu His Ile Thr Val Val Glu Lys  
 130 135 140  
 Val Ala Asp Val Glu Ala Leu Pro Phe Ser Ser Asp Thr Pro Leu Phe  
 145 150 155 160  
 Tyr Ile Thr Gln Thr Thr Leu Ser Leu Asp Asp Val Gln Glu Ile Ser  
 165 170 175  
 Ser Ala Leu Leu Lys Arg Tyr Pro Ser Ile Ile Thr Leu Pro Ser Ser  
 180 185 190  
 Ser Ile Cys Tyr Ala Thr Thr Asn Arg Gln Lys Ala Leu Arg Ser Val  
 195 200 205  
 Leu Ser Arg Val Asn Tyr Val Tyr Val Val Gly Asp Val Asn Ser Ser  
 210 215 220  
 Asn Ser Asn Arg Leu Arg Glu Val Ala Leu Arg Arg Gly Val Pro Ala  
 225 230 235 240  
 Asp Leu Ile Asn Asn Pro Glu Asp Ile Asp Thr Asn Ile Val Asn His  
 245 250 255  
 Ser Gly Asp Ile Ala Met Thr Ala Gly Ala Ser Thr Pro Glu Asp Val  
 260 265 270  
 Val Gln Ala Cys Ile Arg Lys Leu Ser Ser Leu Ile Pro Gly Leu Gln  
 275 280 285  
 Val Glu Asn Asp Ile Phe Ala Val Glu Asp Val Val Phe Gln Leu Pro  
 290 295 300  
 Lys Glu Leu Arg Cys Ser  
 305 310

&lt;210&gt;1091

&lt;211&gt;245

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1091

Arg Met Ser Tyr Phe Asn Tyr Gln Lys Asn Ser Val Val Leu Arg Ser  
 1 5 10 15  
 Leu Gly Leu Leu Ala Lys Phe Phe Ser Arg Leu Leu Tyr Arg Val Phe  
 20 25 30  
 Phe Ser Phe Arg Glu Gly Ile Tyr Leu Phe Ser Ser Leu Tyr Leu Lys  
 35 40 45  
 Tyr Pro Arg Leu Phe Phe Tyr Asp Leu Gly Lys Tyr Val Tyr Ser Leu  
 50 55 60  
 Arg His Cys Pro Tyr Ala Lys Leu Gly Arg Leu Pro Gly Ala Ser Leu  
 65 70 75 80  
 Leu Lys Glu Gly Asn Val Tyr Gly Glu Thr Pro Trp Ser Val Leu Ala  
 85 90 95  
 Lys Ile Cys Gln Ala Phe Asp Ile Thr Ser Gln Asp Ile Leu Tyr Asp  
 100 105 110  
 Leu Gly Cys Gly Leu Gly Lys Val Cys Phe Trp Phe Ser His Val Val  
 115 120 125  
 Arg Cys Gln Val Ile Gly Ile Asp Asn Gln Pro His Phe Ile Arg Phe  
 130 135 140  
 Ser Ser Asn Met His Arg Lys Leu Ser Ser Gly Phe Ala Leu Phe Asp

145 150 155 160  
 Thr Glu Glu Phe Lys Asn Val Val Leu Ser Gln Ala Ser Tyr Val Tyr  
 165 170 175  
 Phe Tyr Gly Ser Ser Phe Ser Arg Arg Leu Leu Asn Glu Ile Ile Leu  
 180 185 190  
 Lys Leu Ser Glu Met Ala Pro Gly Ser Val Val Ile Ser Ile Ser Phe  
 195 200 205  
 Pro Leu Asp Ser Phe Ser Arg Gly Lys Glu Cys Phe Phe Thr Glu Lys  
 210 215 220  
 Ser Cys Ser Val Arg Phe Pro Trp Gly Lys Thr Ile Ala Tyr Lys Asn  
 225 230 235 240  
 Ile Arg Lys Gly Ser  
 245

&lt;210&gt;1092

&lt;211&gt;385

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1092

Lys Ser Leu Ser Ala Glu Ser Thr Ser Ser Asn Ser Thr Gly Lys Ala  
 1 5 10 15  
 Ser Thr Glu Thr Thr Ser Ser Ser Phe Pro Phe Phe Ser Cys Lys Ala  
 20 25 30  
 Pro Glu Gly Asp Ser Ser Val Asp Lys Thr Phe Thr Val Ser Val Gln  
 35 40 45  
 Thr Pro Lys Ala Gln Glu Gln Gln Glu Ala Ser Ala Ser Gln Ser Gln  
 50 55 60  
 Ala Gln Phe His Val Arg Ser Tyr Ser Ser Ser Thr Ile Lys Glu His  
 65 70 75 80  
 Ser Ala Lys Glu Lys Val Ser Gln Ser Thr Lys Ser Ala Glu Thr Gln  
 85 90 95  
 Lys His Thr Gln Thr Lys Ser Asp Ala Thr Leu Ser Pro Met Ser Leu  
 100 105 110  
 Tyr Ser Thr Leu His Lys Glu Val Pro Gln Ala Leu Ser Ser Thr Lys  
 115 120 125  
 Ser Gln Gln Lys Asp Glu Glu His Arg Asp Gln Arg Gln Gln Glu Gly  
 130 135 140  
 Tyr Glu Gln Glu Gln Glu Gln Glu Gly Lys Lys Lys Thr Pro Trp  
 145 150 155 160  
 Cys Thr Val Glu Ser Leu Gln Gln Thr Ser Ser Ser Asn Gln Val Tyr  
 165 170 175  
 Glu Ser Tyr Thr Pro Ile Ile Pro Asp Pro Ile Val Glu Phe Ala Leu  
 180 185 190  
 Ser Glu Ser Gln Leu Ser Val Leu Ala Gly Lys Arg Val Thr Asn Leu  
 195 200 205  
 Asp Val Leu Arg Ile Cys Thr Glu Leu Met Lys Leu Met Leu Lys Ser  
 210 215 220  
 Arg Ala Asn Asp Thr Met Thr Arg Leu Glu Glu Arg Glu Leu Met Glu  
 225 230 235 240  
 Arg Glu Ala His Glu Leu Ala Ala Ser Tyr Ser Arg Gln Ala Lys Tyr  
 245 250 255  
 Ala Arg Trp Leu Gly Ile Ala Thr Ala Thr Leu Gly Ile Leu Gly Ala  
 260 265 270  
 Ile Ala Pro Met Val Gly Glu Ile Ser Gly Asp Ser Ile Leu Gly Phe  
 275 280 285  
 Val Gln Arg Ile Ser Gly Arg Phe Lys Asp Ala Thr Ala Lys Thr Phe  
 290 295 300  
 Phe Lys Gly Ile Gly Lys Val Phe Thr Ser Leu Ser Gln Leu Thr Glu  
 305 310 315 320  
 Ala Ala Ser Lys Val His Glu Leu Ser Glu Ser Ala Val Arg Ala Val  
 325 330 335  
 Ala Glu Tyr Arg Lys Glu Val Phe Arg Met Arg Gln Asp Glu Val Thr  
 340 345 350  
 Arg Thr Ile Glu Glu Val Lys Asp Asn Trp Lys Ser Met Asp Asn Phe  
 355 360 365

Leu Leu Asn Ile Leu Gln Thr Glu His Asp Ala Ala Arg Ser Leu Tyr  
 370 375 380  
 Gln  
 385  
 <210>1093  
 <211>112  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1093  
 Ile His Arg Arg Xaa Ile Met Thr Val Ser Tyr Gln Ser Ile Ser Thr  
 1 5 10 15  
 Pro Pro Pro Glu Gly Glu Phe Asp Ile Phe Val Asp Gly Asn Ala Thr  
 20 25 30  
 Glu Glu Ala Val Val Ala Ala Glu Val Gln Val Ala Leu Pro Ala Gly  
 35 40 45  
 Glu Gln Tyr Ala Met Leu Arg Ala Thr Ser Glu Leu Cys Phe Gly Ile  
 50 55 60  
 Xaa Thr Gln Ser Glu Cys Ala Leu Thr Gln Ala Leu Pro Pro Lys Glu  
 65 70 75 80  
 Lys Thr Ile Thr Arg Arg Ala Ile Ser Ser Lys Lys Trp His Ile Asn  
 85 90 95  
 Ala Ile Asn Ile Ser Ala Glu Pro Lys Thr Arg Thr Ile Ala Ala Asp  
 100 105 110  
 <210>1094  
 <211>515  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1094  
 Cys Gly Asn Ser Thr Met Ser Ser Trp Leu Ser Gln Ala Ser Glu Val  
 1 5 10 15  
 Leu Leu Asn Gln Asp Pro Tyr Ile Pro Asp Ala Pro Arg Ser Gln Glu  
 20 25 30  
 Ser Ser Val Pro Lys Ile Ser Tyr Ser Ile Thr Val Ala Pro Gln Glu  
 35 40 45  
 Ala Gln Lys Ser Leu Pro Lys Phe Phe Thr Gln Lys Phe Gln Ser Gln  
 50 55 60  
 Cys Lys Ser Glu Pro Pro Ile Thr His His Lys Thr Phe Ile Ile Ala  
 65 70 75 80  
 Thr Pro Arg Glu Arg Ile Leu Arg Phe Gly Ser Ser Phe Glu Ser Gln  
 85 90 95  
 Leu His Asn Thr Ser Gln Ala Gln Thr Ser Ser Pro Trp Asn Leu Phe  
 100 105 110  
 Ser Gln Lys Asn Ser Thr Glu Ala Ser Lys Ala Leu Met Gln Glu Leu  
 115 120 125  
 Thr Met Pro Lys Ser Pro Glu Lys Thr Ser Glu Lys Ala Leu Asp Lys  
 130 135 140  
 Asn Leu Ser Ser Lys Gln Glu Gly Ser Cys Lys Asn Phe Asp Thr Leu  
 145 150 155 160  
 His Leu Gln Gln His Leu Lys Leu Phe Gly Thr Val Asp Ser Leu Tyr  
 165 170 175  
 Ser Gln Ser Leu Asp Ser Glu Gln Gln Glu Leu Leu Gln Ser Arg Arg  
 180 185 190  
 Glu Glu Arg Ser Glu Thr Tyr Ala Asn Gln Gln Ser Ser Glu Lys Lys  
 195 200 205  
 Ile Glu Thr Lys Val Gln Ile Lys Asp Leu Cys Lys Asp Leu Phe Ser  
 210 215 220  
 Gln Asp Gln Asp Ser Asn Gln Lys Gln Lys Lys Ser Pro Phe Gln Gln  
 225 230 235 240  
 Asp Thr Ser Arg Lys Asn Arg Ile Ala Lys Ala Ala Gln Ala Val Pro  
 245 250 255  
 Val Ile Pro Pro Pro Ser Ile Gly Val Phe Thr Leu Ser Tyr Leu Leu  
 260 265 270  
 Thr Lys Gln Gly Ile Leu Ser Asp Phe Ser Ser Tyr Gly Cys His Lys  
 275 280 285

Asp Ser Val Glu Ser Thr Gln Arg Glu Leu Asp Ala Leu His Glu Lys  
 290 295 300  
 Arg Ile Glu Thr Ile Lys Val Ser Ile Glu Lys Glu Lys Arg Glu Arg  
 305 310 315 320  
 Leu Trp Gly Ser Leu Ser Asp Ile Ile Gly Trp Leu Ala Pro Phe Val  
 325 330 335  
 Ser Ile Gly Ile Gly Ile Val Ala Ile Leu Ser Gly Gly Gly Ile Phe  
 340 345 350  
 Ala Phe Ala Gly Phe Phe Ala Gly Leu Ile Ser Leu Val Ile Lys Cys  
 355 360 365  
 Leu Glu Lys Leu Lys Phe Trp Asp Trp Leu Glu Lys His Leu Pro Ile  
 370 375 380  
 Asn Asn Glu Glu Leu Arg Arg Lys Ile Ile Thr Ile Ile Gln Trp Val  
 385 390 395 400  
 Val Tyr Leu Thr Pro Val Ile Leu Ser Ile Cys Thr Leu Lys Val Glu  
 405 410 415  
 Asn Leu Gly Phe Ser Pro Ile Ile Glu Gly Ala Ile Lys Gly Ile Gln  
 420 425 430  
 Pro Ala Ile Glu Ser Thr Met Ala Ala Leu Arg Cys Ala Ile Leu Phe  
 435 440 445  
 Ser Gln Ala Glu Ile Tyr Lys Leu Lys Gly Lys Leu Thr Lys Ile Gln  
 450 455 460  
 Leu Asp Ile Glu Leu Lys Ser Phe Asp Arg Asp Asp His Tyr Glu Arg  
 465 470 475 480  
 Ser Gln Glu Leu Leu Asp Asn Met Glu Ser Ser Phe Glu Ala Leu Ser  
 485 490 495  
 Arg Ile Leu Asn Tyr Met Arg Glu Leu Asp Gln Val Tyr Leu His Ser  
 500 505 510  
 Leu Arg Gly  
 515

&lt;210&gt;1095

&lt;211&gt;191

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1095

Cys Ile Glu Val Ile Glu Arg Thr Tyr Gly His Leu His Leu Gln Pro  
 1 5 10 15  
 Thr Pro Leu Met Ser His Leu Asn Tyr Leu Leu Glu Lys Ile Ala Ala  
 20 25 30  
 Ser Ser Lys Glu Asp Phe Pro Phe Pro Asp Asp Leu Glu Ser Tyr Leu  
 35 40 45  
 Glu Gly Tyr Val Pro Asp Lys Asn Ile Ala Leu Asp Thr Tyr Gln Lys  
 50 55 60  
 Ile Phe Lys Ile Ser Ser Glu Asp Leu Glu Lys Val Tyr Lys Glu Gly  
 65 70 75 80  
 Tyr His Ala Tyr Leu Asp Lys Asp Tyr Ala Lys Ser Ile Thr Val Phe  
 85 90 95  
 Arg Trp Leu Val Phe Phe Asn Pro Phe Val Ser Lys Phe Trp Phe Ser  
 100 105 110  
 Leu Gly Ala Ser Leu His Met Ser Glu Gln Tyr Ser Gln Ala Leu His  
 115 120 125  
 Ala Tyr Gly Val Thr Ala Val Leu Arg Asp Lys Asp Pro Tyr Pro His  
 130 135 140  
 Tyr Tyr Ala Tyr Ile Cys Tyr Thr Leu Thr Asn Glu His Glu Glu Ala  
 145 150 155 160  
 Glu Lys Ala Leu Glu Met Ala Trp Val Arg Ala Gln His Lys Pro Leu  
 165 170 175  
 Tyr Asn Glu Leu Lys Glu Glu Ile Leu Asp Ile Arg Lys His Lys  
 180 185 190

&lt;210&gt;1096

&lt;211&gt;339

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1096



Thr Thr Ala Ser Ser Ser Asn Thr Lys Arg Leu Cys Cys Lys Lys Thr  
 1 5 10 15  
 Gln Arg Arg Pro Ser Pro Glu Thr Gln Ala Arg Ala Ser Leu Ser Gln  
 20 25 30  
 Ala Ser Ser Ser Ser Gln Arg Ser Leu Pro Pro Gln Glu Ser Ala Pro  
 35 40 45  
 Glu Arg Thr Leu Leu Glu Gln Gln Lys Ala Ser Ser Phe Ser Pro Leu  
 50 55 60  
 Ser Gln Phe Ser Ala Glu Lys Gln Lys Glu Ala Leu Thr Thr Ser Lys  
 65 70 75 80  
 Ser His Glu Leu Tyr Lys Glu Arg Asp Gln Asp Arg Gln Gln Arg Glu  
 85 90 95  
 Gln His Asp Arg Lys His Asp Gln Glu Glu Asp Ala Glu Ser Lys Lys  
 100 105 110  
 Lys Lys Lys Lys Arg Gly Leu Gly Val Glu Ala Val Ala Glu Glu Pro  
 115 120 125  
 Gly Glu Asn Leu Asp Ile Ala Ala Leu Ile Phe Ser Asp Gln Met Arg  
 130 135 140  
 Pro Pro Ala Glu Glu Thr Ser Xaa Lys Glu Thr Thr Phe Lys Lys Lys  
 145 150 155 160  
 Leu Pro Ser Pro Met Ser Val Phe Ser Arg Phe Ile Pro Ser Lys Asn  
 165 170 175  
 Pro Leu Ser Val Gly Ser Ser Ile His Xaa Pro Ile Gln Thr Pro Lys  
 180 185 190  
 Val Glu Asn Val Phe Leu Arg Phe Met Lys Leu Met Ala Arg Ile Leu  
 195 200 205  
 Gly Gln Ala Glu Ala Glu Ala Asn Glu Leu Tyr Met Arg Val Lys Gln  
 210 215 220  
 Arg Thr Asp Asp Val Asp Thr Leu Thr Val Leu Ile Ser Lys Ile Asn  
 225 230 235 240  
 Asn Glu Lys Lys Asp Ile Asp Trp Ser Glu Asn Glu Glu Met Lys Ala  
 245 250 255  
 Leu Leu Asn Arg Ala Lys Glu Ile Gly Val Thr Ile Asp Lys Glu Lys  
 260 265 270  
 Tyr Thr Trp Thr Glu Glu Glu Lys Arg Leu Leu Lys Glu Asn Val Gln  
 275 280 285  
 Met Arg Lys Glu Asn Met Glu Lys Ile Thr Gln Met Glu Arg Thr Asp  
 290 295 300  
 Met Gln Arg His Leu Gln Glu Ile Ser Gln Cys His Gln Ala Arg Ser  
 305 310 315 320  
 Asn Val Leu Lys Leu Leu Lys Glu Leu Met Asp Thr Phe Ile Tyr Asn  
 325 330 335  
 Leu Arg Pro

&lt;210&gt;1097

&lt;211&gt;211

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1097

Phe Ser Phe Phe Phe Tyr Ala Leu Lys Leu Gln Ile Met Asn Met Pro  
 1 5 10 15  
 Val Pro Ser Ala Val Pro Ser Ala Asn Ile Thr Leu Lys Glu Asp Ser  
 20 25 30  
 Ser Thr Val Ser Thr Ala Ser Gly Ile Leu Lys Thr Ala Thr Gly Glu  
 35 40 45  
 Val Leu Val Ser Cys Thr Ala Leu Glu Gly Ser Ser Thr Asp Ala  
 50 55 60  
 Leu Ile Ser Leu Ala Leu Gly Gln Ile Ile Leu Ala Thr Gln Gln Glu  
 65 70 75 80  
 Leu Leu Leu Gln Ser Thr Asn Val His Gln Leu Leu Phe Leu Pro Pro  
 85 90 95  
 Glu Val Val Glu Leu Glu Ile Gln Val Val Asp Leu Leu Val Gln Leu  
 100 105 110  
 Glu His Ala Glu Thr Ile Thr Ser Glu Pro Gln Glu Thr Gln Thr Gln

115 120 125  
 Ser Arg Ser Glu Gln Thr Leu Pro Gln Gln Ser Ser Ser Lys Gln Ser  
 130 135 140  
 Ala Leu Ser Pro Arg Ser Leu Lys Pro Glu Ile Ser Asp Ser Lys Gln  
 145 150 155 160  
 Gln Gln Ala Leu Gln Thr Pro Lys Asp Ser Ala Val Arg Lys His Ser  
 165 170 175  
 Glu Asp Arg His Leu Arg His Lys Leu Ala Leu Pro Tyr Leu Arg Gln  
 180 185 190  
 Ala Gln Val Leu Arg Asp Pro Tyr Leu Arg Lys Lys Val Arg Gln Lys  
 195 200 205  
 Glu His Tyr  
 210  
 <210>1098  
 <211>106  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1098  
 Ile Phe Leu Glu Ile Phe Ile Met Lys Lys Val Val Thr Leu Ser Ile  
 1 5 10 15  
 Ile Phe Phe Ala Thr Tyr Cys Ala Ser Glu Leu Ser Ala Val Thr Val  
 20 25 30  
 Val Ala Val Pro Leu Ser Glu Ala Pro Gly Lys Ile Gln Val Arg Pro  
 35 40 45  
 Val Val Gly Leu Gln Phe Gln Glu Glu Gln Gly Ser Val Pro Tyr Ser  
 50 55 60  
 Phe Tyr Tyr Pro Tyr Asp Tyr Gly Tyr Tyr Tyr Pro Glu Thr Tyr Gly  
 65 70 75 80  
 Tyr Thr Lys Asn Thr Gly Gln Glu Ser Arg Glu Cys Tyr Thr Arg Phe  
 85 90 95  
 Glu Asp Gly Thr Ile Phe Tyr Glu Cys Asp  
 100 105  
 <210>1099  
 <211>301  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1099  
 Met Thr Met Pro Ser Thr Gln Phe His Thr Thr Ile Leu Glu Gln Phe  
 1 5 10 15  
 Ser Leu Phe Leu Ser Val Asp Arg Gly Leu Cys Gln Gln Ser Ile Ala  
 20 25 30  
 Ala Tyr Arg Gln Asp Ile Ser Ser Phe Leu Thr Ile Ser Ala Ile Ser  
 35 40 45  
 Ser Pro Gln Asp Ile Ser Gln Asn Ser Val Tyr Ile Phe Ala Glu Glu  
 50 55 60  
 Leu Tyr Arg Arg Lys Glu Ala Glu Thr Thr Leu Ala Arg Arg Leu Ile  
 65 70 75 80  
 Ala Leu Lys Val Phe Phe Leu Phe Leu Lys Asp Gln Gln Leu Leu Pro  
 85 90 95  
 Tyr Pro Pro Ile Ile Glu His Pro Lys Ile Trp Lys Arg Leu Pro Ser  
 100 105 110  
 Val Leu Thr Pro Gln Glu Val Asp Ala Leu Leu Ala Val Pro Leu Gln  
 115 120 125  
 Met Glu Lys Asn Pro Arg His Leu Ala Phe Arg Asp Thr Ala Ile Leu  
 130 135 140  
 His Thr Leu Tyr Ser Thr Gly Val Arg Val Ser Glu Leu Cys Asp Leu  
 145 150 155 160  
 Arg Leu Gly His Val Ser Asp Asp Cys Ile Arg Val Thr Gly Lys Gly  
 165 170 175  
 Ser Lys Thr Arg Leu Val Pro Leu Gly Ser Arg Ala Arg Glu Ala Ile  
 180 185 190  
 Asp Ala Tyr Leu Cys Pro Phe Arg Asp Gln Tyr Gln Lys Lys Asn Pro  
 195 200 205  
 His Glu Asp His Leu Phe Leu Ser Thr Arg Gly His Lys Leu Glu Arg

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      210              215              220
Ser Cys Val Trp Arg Arg Ile His Asn Tyr Ala Lys Gln Val Thr Ser
225              230              235              240
Lys Pro Val Ser Pro His Ser Leu Arg His Ala Phe Ala Thr His Leu
      245              250              255
Leu Asp Asn Lys Ala Asp Leu Arg Val Ile Gln Glu Met Leu Gly His
      260              265              270
Ala Arg Ile Ala Ser Thr Glu Val Tyr Thr His Val Ala Ala Asp Ser
      275              280              285
Leu Ile Glu Lys Phe Leu Ala His His Pro Arg Asn Leu
      290              295              300
<210>1100
<211>553
<212>PRT
<213>Chlamydia pneumoniae
<400>1100
Val Glu Gly Ile Val Ile Leu Ala Asn Glu Cys Asn Phe Ser Ile Gly
  1              5              10              15
Ser Gly Glu Phe Ser Ser Tyr Arg Glu Lys Thr Met Glu Arg Lys Arg
      20              25              30
Phe Ile Asp Cys Asp Ser Thr Lys Ile Leu Gln Glu Leu Ala Leu Asn
      35              40              45
Pro Leu Asp Leu Thr Ala Pro Gly Val Leu Ser Ala Glu Arg Ile Lys
      50              55              60
Lys Phe Ser Leu Leu Gly Gly Gly Phe Thr Phe Ser Phe Ala Thr Glu
      65              70              75              80
Arg Leu Asp Asp Ala Ile Leu Ala Ala Leu Ile Ser Leu Ala Glu Glu
      85              90              95
Arg Gly Leu His Glu Ser Met Leu Ala Met Gln Gln Gly Gln Val Val
      100              105              110
Asn Tyr Ile Glu Gly Phe Pro Ser Glu Met Arg Pro Ala Leu His Thr
      115              120              125
Ala Thr Arg Ala Trp Val Thr Asp Ser Ser Phe Thr Gly Glu Ala Glu
      130              135              140
Asp Ile Ala Val Arg Ser Arg Val Glu Ala Gln Arg Leu Lys Asp Phe
      145              150              155              160
Leu Thr Lys Val Arg Ser Gln Phe Thr Thr Ile Val Gln Ile Gly Ile
      165              170              175
Gly Gly Ser Glu Leu Gly Pro Lys Ala Leu Tyr Arg Ala Leu Arg Ala
      180              185              190
Tyr Cys Pro Thr Asp Lys His Val His Phe Ile Ser Asn Ile Asp Pro
      195              200              205
Asp Asn Gly Ala Glu Val Leu Asp Thr Ile Asp Cys Ala Lys Ala Leu
      210              215              220
Val Val Val Val Ser Lys Ser Gly Thr Thr Ile Glu Thr Ala Val Asn
      225              230              235              240
Glu Ala Phe Phe Ala Asp Tyr Phe Ala Lys Lys Gly Leu Ser Phe Lys
      245              250              255
Asp His Phe Ile Ala Val Thr Cys Glu Gly Ser Pro Met Asp Asp Thr
      260              265              270
Gly Lys Tyr Leu Glu Val Phe His Leu Trp Glu Ser Ile Gly Gly Arg
      275              280              285
Phe Ser Ser Thr Ser Met Val Gly Gly Val Val Leu Gly Phe Ala Tyr
      290              295              300
Gly Phe Glu Val Phe Leu Gln Leu Leu Gln Gly Ala Ser Ala Met Asp
      305              310              315              320
Gln Ile Ala Leu Gln Pro Asn Ala Arg Glu Asn Leu Pro Met Leu Ser
      325              330              335
Ala Leu Ile Ser Ile Trp Asn Arg Asn Phe Leu Gly Tyr Pro Thr Glu
      340              345              350
Ala Val Ile Pro Tyr Ser Ser Gly Leu Glu Phe Phe Pro Ala His Leu
      355              360              365
Gln Gln Cys Cys Met Glu Ser Asn Gly Lys Ser Ile Val Gln Asp Gly
      370              375              380

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Arg Arg Val Gly Phe Ser Thr Ser Pro Val Ile Trp Gly Glu Pro Gly  
 385 390 395 400  
 Thr Asn Gly Gln His Ser Phe Phe Gln Cys Leu His Gln Gly Thr Asp  
 405 410 415  
 Ile Ile Pro Val Glu Phe Ile Gly Phe Glu Lys Ser Gln Lys Gly Glu  
 420 425 430  
 Asp Ile Ser Phe Gln Gly Thr Thr Ser Ser Gln Lys Leu Phe Ala Asn  
 435 440 445  
 Met Ile Ala Gln Ala Ile Ala Leu Ala Cys Gly Ser Glu Asn Thr Asn  
 450 455 460  
 Pro Asn Lys Asn Phe Asp Gly Asn Arg Pro Ser Ser Val Leu Val Ser  
 465 470 475 480  
 Ser Gln Leu Asn Pro Tyr Ser Leu Gly Glu Leu Leu Ser Tyr Tyr Glu  
 485 490 495  
 Asn Lys Ile Val Phe Gln Gly Phe Cys Trp Gly Ile Asn Ser Phe Asp  
 500 505 510  
 Gln Glu Gly Val Ser Leu Gly Lys Ala Leu Ala Asn Arg Val Leu Glu  
 515 520 525  
 Leu Leu Glu Gly Ala Asp Ala Ser Asn Phe Pro Glu Ala Ala Ser Leu  
 530 535 540  
 Leu Thr Leu Phe Asn Ile Lys Phe Arg  
 545 550  
 <210>1101  
 <211>523  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1101  
 Asn Met Pro Gly Ser Val Ser Ser Pro Pro Leu Ser Pro Val Ile Val  
 1 5 10 15  
 Arg Glu Arg Val Pro Ser Ser Ser Gly Ser Asp Leu Ile Gln Pro His  
 20 25 30  
 Ala Val Leu Lys Ile Ser Ile Leu Ile Phe Ala Leu Val Thr Ile Leu  
 35 40 45  
 Gly Ile Val Leu Val Val Ser Ser Ala Leu Gly Ala Leu Pro Ser Leu  
 50 55 60  
 Val Leu Thr Val Ser Gly Cys Ile Ala Ile Ala Val Gly Leu Ile Gly  
 65 70 75 80  
 Leu Gly Ile Leu Val Thr Arg Leu Ile Leu Ser Thr Ile Arg Lys Val  
 85 90 95  
 Asp Ala Met Gly Tyr Asp Ala Ala Val Lys Glu Glu Gln Tyr Leu Ser  
 100 105 110  
 Arg Ile Arg Glu Leu Glu Ser Glu Asn Arg Glu Ile Arg Asp Arg Asn  
 115 120 125  
 Arg Ala Val Glu Asp Gln Cys Ala His Leu Ser Glu Glu Asn Lys Asp  
 130 135 140  
 Leu Arg Asp Pro Glu Tyr Leu His Gly Met Thr Glu Arg Leu Ile Ala  
 145 150 155 160  
 Ser Leu Glu Ile Glu Asn Gln Ala Leu Val Ala Glu Asn Ile Leu Leu  
 165 170 175  
 Lys Asp Trp Asn Ala Ser Leu Ser Arg Asp Phe Arg Ala Tyr Lys Gln  
 180 185 190  
 Lys Phe Pro Leu Gly Ala Leu Glu Pro Trp Lys Glu Asp Ile Ala Cys  
 195 200 205  
 Ile Met Glu Gln Asn Leu Phe Leu Lys Pro Glu Cys Ile Ala Met Val  
 210 215 220  
 Lys Ser Leu Pro Leu Glu Thr Gln Arg Leu Phe Leu Tyr Pro Lys Gly  
 225 230 235 240  
 Phe Gln Ser Leu Val Asn Arg Phe Ala Pro Arg Ser Arg Phe Phe Gln  
 245 250 255  
 Thr Pro Lys Tyr Glu Tyr Asn Ser Arg Asn Glu Asn Glu Asp Gly Lys  
 260 265 270  
 Val Ala Ala Val Cys Ala Arg Leu Lys Lys Glu Phe Phe Ser Ala Val  
 275 280 285  
 Leu Gly Ala Cys Ser Tyr Glu Glu Leu Gly Gly Ile Cys Glu Arg Ala

290 295 300  
 Val Ala Leu Lys Glu Thr Leu Pro Leu Pro Glu Ala Val Tyr Asp Thr  
 305 310 315 320  
 Leu Val Gln Glu Phe Pro Asn Leu Leu Thr Ala Glu Ser Leu Trp Lys  
 325 330 335  
 Glu Trp Cys Phe Tyr Ser Tyr Pro Tyr Leu Arg Pro Tyr Leu Ser Val  
 340 345 350  
 Asp Tyr Cys Lys Arg Leu Phe Val Gln Leu Phe Glu Glu Leu Cys Leu  
 355 360 365  
 Lys Leu Phe Thr Thr Gly Ser Pro Glu Asp Gln Ala Leu Val Arg Leu  
 370 375 380  
 Phe Ser Tyr Tyr Arg Asn His Ile Pro Ala Val Leu Ala Ser Phe Gly  
 385 390 395 400  
 Leu Pro Pro Pro Glu Thr Gly Gly Ser Val Phe Val Leu Leu Pro Lys  
 405 410 415  
 Gln Glu Asn Leu Leu Trp Ser Gln Ile Glu Val Leu Ala Thr Arg Tyr  
 420 425 430  
 Leu Lys Asp Thr Phe Val Arg Asn Ser Glu Trp Thr Gly Ser Phe Glu  
 435 440 445  
 Met Met Phe Ser Tyr Asn Glu Met Cys Lys Glu Ile Ser Glu Gly Arg  
 450 455 460  
 Ile Arg Phe Ala Glu Asp Tyr Glu Thr Arg His Ser Glu Glu Phe Pro  
 465 470 475 480  
 Pro Ser Pro Leu Ser Glu Glu Gly Glu Gly Glu Glu Phe Leu Pro Pro  
 485 490 495  
 Cys Ser Glu Glu Glu Val Ser Val Leu Glu Arg Pro Asp Leu Asp Val  
 500 505 510  
 Asp Ser Met Trp Val Trp His Pro Ser Gly Pro  
 515 520  
 <210>1102  
 <211>335  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1102  
 Phe Phe Leu Lys Gly Val Arg Met Ala Phe Lys Glu Val Val Arg Val  
 1 5 10 15  
 Ala Val Thr Gly Gly Lys Gly Gln Ile Ala Tyr Asn Phe Leu Phe Ala  
 20 25 30  
 Leu Ala His Gly Asp Val Phe Gly Val Asp Arg Gly Val Asp Leu Arg  
 35 40 45  
 Ile Tyr Asp Val Pro Gly Thr Glu Arg Ala Leu Ser Gly Val Arg Met  
 50 55 60  
 Glu Leu Asp Asp Gly Ala Tyr Pro Leu Xaa His Arg Leu Arg Val Thr  
 65 70 75 80  
 Thr Ser Leu Asn Asp Ala Phe Asp Gly Ile Asp Ala Ala Phe Leu Ile  
 85 90 95  
 Gly Ala Val Pro Arg Gly Pro Gly Met Glu Arg Gly Asp Leu Leu Lys  
 100 105 110  
 Gln Asn Gly Gln Ile Phe Ser Leu Gln Gly Ala Ala Leu Asn Thr Ala  
 115 120 125  
 Ala Lys Arg Asp Ala Lys Ile Phe Val Val Gly Asn Pro Val Asn Thr  
 130 135 140  
 Asn Cys Trp Ile Ala Met Lys His Ala Pro Arg Leu His Arg Lys Asn  
 145 150 155 160  
 Phe His Ala Met Leu Arg Leu Asp Gln Asn Arg Met His Ser Met Leu  
 165 170 175  
 Ala His Arg Ala Glu Val Pro Leu Glu Glu Val Ser Arg Val Val Ile  
 180 185 190  
 Trp Gly Asn His Ser Ala Lys Gln Val Pro Asp Phe Thr Gln Ala Arg  
 195 200 205  
 Ile Ser Gly Lys Pro Ala Ala Glu Val Ile Gly Asp Arg Asp Trp Leu  
 210 215 220  
 Glu Asn Ile Leu Val His Ser Val Gln Asn Arg Gly Ser Ala Val Ile  
 225 230 235 240

|          |     |     |     |          |     |     |     |     |           |     |     |     |     |           |     |
|----------|-----|-----|-----|----------|-----|-----|-----|-----|-----------|-----|-----|-----|-----|-----------|-----|
| Ser<br>1 | Xaa | Cys | Ala | Ser<br>5 | Lys | Ala | Leu | Asn | Val<br>10 | Pro | Ile | Val | Ile | Ser<br>15 | Gln |
| Gly      | Ile | Leu | Arg | Pro      | Ala | Ile | Asp | Glu | Asp       | Gln | Ala | Gln | Leu | Phe       | Thr |
|          |     |     | 20  |          |     |     |     |     | 25        |     |     |     |     | 30        |     |
| Glu      | Arg | Val | Glu | Glu      | Phe | Pro | Lys | Glu | Val       | Glu | Trp | Trp | Glu | Xaa       | Ala |
|          |     |     | 35  |          |     |     | 40  |     |           |     |     |     | 45  |           |     |
| Arg      | Cys | Glu | Ile | Ser      | Ile | Pro | Ser | Met | Val       | Ile | Pro | Pro | Asn | Leu       | Gly |
|          | 50  |     |     |          |     | 55  |     |     |           |     | 60  |     |     |           |     |
| Ala      | Leu | Phe | Ile | Lys      | Ser | Gly | Val | Thr | Leu       | Asn | Asn | Asp | Leu | Tyr       | Ile |
| 65       |     |     |     |          | 70  |     |     |     |           | 75  |     |     |     |           | 80  |
| Gln      | Gly | Leu | Ala | Asp      | Ala | Cys | Met | Lys | Leu       | Gly | Thr | Gln | Phe | Tyr       | Asp |
|          |     |     |     | 85       |     |     |     |     |           | 90  |     |     |     | 95        |     |
| Glu      | Leu | Ile | Glu | Asp      | Leu | Ala | Asp | Ile | Glu       | Glu | Phe | Tyr | Asp | His       | Ile |
|          |     |     | 100 |          |     |     |     | 105 |           |     |     |     | 110 |           |     |
| Ile      | Val | Thr | Pro | Gly      | Ala | Asn | Ala | Ser | Ile       | Leu | Pro | Glu | Leu | Lys       | Asp |
|          |     |     | 115 |          |     |     | 120 |     |           |     |     | 125 |     |           |     |
| Met      | Pro | Val | Asn | Lys      | Val | Lys | Gly | Gln | Leu       | Leu | Glu | Ile | Ser | Trp       | Pro |
|          | 130 |     |     |          |     | 135 |     |     |           |     | 140 |     |     |           |     |
| Lys      | Asp | Leu | Ala | Met      | Leu | Ser | Phe | Ser | Ile       | Asn | Ala | His | Lys | Tyr       | Met |
| 145      |     |     |     |          | 150 |     |     |     |           | 155 |     |     |     |           | 160 |
| Val      | Ala | Asn | Thr | Gln      | Lys | Asn | Thr | Cys | Ile       | Leu | Gly | Ala | Thr | Phe       | Glu |
|          |     |     |     | 165      |     |     |     |     | 170       |     |     |     |     | 175       |     |
| His      | Asn | Gln | Pro | Glu      | Glu | Thr | Pro | Asp | Pro       | Ala | Ile | Ala | Tyr | Gln       | Glu |
|          |     |     | 180 |          |     |     |     | 185 |           |     |     |     | 190 |           |     |
| Ile      | Met | Pro | Pro | Val      | Leu | Ser | Leu | Phe | Pro       | Gly | Leu | Lys | Asp | Ala       | Gln |
|          |     |     | 195 |          |     |     | 200 |     |           |     |     | 205 |     |           |     |
| Val      | Leu | His | Cys | Tyr      | Ala | Gly | Met | Arg | Ser       | Ser | Ser | Lys | Ser | Arg       | Leu |
|          | 210 |     |     |          | 215 |     |     |     |           |     | 220 |     |     |           |     |
| Pro      | Val | Ile | Ser | Arg      | Ile | Arg | Glu | Lys | Leu       | Trp | Phe | Leu | Gly | Gly       | Leu |
| 225      |     |     |     |          | 230 |     |     |     |           | 235 |     |     |     |           | 240 |

1109

420 425 430  
 Val Leu Leu Ala Leu Gly Ile Pro Phe Tyr Ile Asp Ala Gly Lys Lys  
 435 440 445  
 Lys Lys Asn Ala Lys Thr Phe Phe Ala Lys Lys Glu Ile Val Gly Met  
 450 455 460  
 Thr Phe Ile Gly Leu Leu Ala Leu Thr Ala Ile Phe Leu Phe Ser Thr  
 465 470 475 480  
 Gly Arg Ile Lys Ile  
 485

&lt;210&gt;1106

&lt;211&gt;196

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1106

Leu Met Ala Tyr Gly Thr Arg Tyr Pro Thr Leu Ala Phe His Thr Gly  
 1 5 10 15  
 Gly Ile Gly Glu Ser Asp Asp Gly Met Pro Pro Gln Pro Phe Glu Thr  
 20 25 30  
 Phe Cys Tyr Asp Ser Ala Leu Leu Gln Ala Lys Ile Glu Asn Phe Asn  
 35 40 45  
 Ile Val Pro Tyr Thr Ser Val Leu Pro Lys Glu Leu Phe Gly Asn Ile  
 50 55 60  
 Val Pro Val Asp Thr Cys Val Lys Ser Phe Lys His Gly Ala Val Leu  
 65 70 75 80  
 Glu Val Ile Met Ala Gly Arg Gly Ala Ala Leu Ser Asp Gly Thr His  
 85 90 95  
 Ala Ile Ala Thr Gly Ile Gly Ile Cys Trp Gly Lys Asp Lys Asn Gly  
 100 105 110  
 Glu Leu Ile Gly Gly Trp Ala Ala Glu Tyr Val Glu Phe Phe Pro Thr  
 115 120 125  
 Trp Ile Asn Asp Glu Ile Ala Glu Thr His Ala Lys Met Trp Leu Lys  
 130 135 140  
 Lys Ser Leu Gln His Glu Leu Asp Leu Arg Ser Ile Ala Lys His Ser  
 145 150 155 160  
 Glu Phe Gln Phe Phe His Asn Tyr Ile Asn Ile Lys Gln Lys Phe Gly  
 165 170 175  
 Phe Cys Leu Thr Ala Leu Gly Phe Leu Asn Phe Glu Asn Ala Glu Pro  
 180 185 190  
 Ala Lys Val Asn  
 195

&lt;210&gt;1107

&lt;211&gt;165

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1107

Gln Lys Ala Thr Tyr Asn Phe Tyr Gly Tyr Ala Ser Trp Thr Pro Lys  
 1 5 10 15  
 Pro Ser Cys Gly Asp Gly Gln Tyr Ser Val Leu Leu Tyr Ser Thr Arg  
 20 25 30  
 Lys Val Pro Glu Gln Asn Ser Gln Val Thr Gly Trp Ser Leu Asn Ala  
 35 40 45  
 Ala Gln His Ile His Glu Lys Leu Tyr Leu Phe Gly Arg Ile Asn Gly  
 50 55 60  
 Ala Thr Gly Thr Ala Leu Pro Ile Asn Arg Ser Tyr Val Leu Gly Leu  
 65 70 75 80  
 Val Ser Glu Asn Pro Leu Asn Arg His Ser Gln Asp Leu Leu Gly Ile  
 85 90 95  
 Gly Phe Ala Thr Asn Lys Val Asn Ala Lys Ala Ile Ser Asn Val Asn  
 100 105 110  
 Lys Leu Arg Arg Tyr Glu Ser Val Met Glu Ala Phe Ala Thr Ile Gly  
 115 120 125  
 Phe Gly Pro Tyr Ile Ser Leu Thr Pro Asp Phe Gln Leu Tyr Ile His  
 130 135 140  
 Pro Ala Leu Arg Pro Glu Arg Arg Thr Ser Gln Val Tyr Gly Leu Arg



<210>1109  
<211>286  
<212>PRT  
<213>Chlamydia pneumoniae  
<400>1109  
Lys Thr Ser Trp Gln Lys Tyr Lys Lys Tyr Leu Ser Tyr Ser Ile Leu  
1 5 10 15  
Val Gln Lys Ile Ala Arg Tyr Val Met Lys Thr Trp Leu Phe Phe Thr  
20 25 30  
Phe Leu Phe Ser Cys Ser Ser Phe Tyr Ala Ser Cys Arg Tyr Ala Glu

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      35      40      45
Val Arg Ser Ile His Glu Val Ala Gly Asp Ile Leu Tyr Asp Glu Glu
  50      55      60
Asn Phe Trp Leu Ile Leu Asp Leu Asp Asp Thr Leu Leu Gln Gly Gly
  65      70      75      80
Glu Ala Leu Ser His Ser Ile Trp Lys Ser Lys Ala Ile Gln Gly Leu
      85      90      95
Gln Lys Gln Gly Thr Pro Glu Gln Glu Ala Trp Glu Ala Val Val Pro
      100      105      110
Phe Trp Ile Glu Ile Gln Glu Met Gly Thr Val Gln Pro Ile Glu Ser
      115      120      125
Ala Ile Phe Leu Leu Ile Glu Lys Ile Gln Lys Gln Gly Lys Thr Thr
      130      135      140
Phe Val Tyr Thr Glu Arg Pro Lys Thr Ala Lys Asp Leu Thr Leu Lys
      145      150      155      160
Gln Leu His Met Leu Asn Val Ser Leu Glu Asp Thr Ala Pro Gln Pro
      165      170      175
Gln Ala Pro Leu Pro Lys Asn Leu Leu Tyr Thr Ser Gly Ile Leu Phe
      180      185      190
Ser Gly Asp Tyr His Lys Gly Pro Gly Leu Asp Leu Phe Leu Glu Ile
      195      200      205
Cys Thr Pro Leu Pro Ala Lys Ile Ile Tyr Ile Asp Asn Gln Lys Glu
      210      215      220
Asn Val Leu Arg Ile Gly Asp Leu Cys Gln Lys Tyr Gly Ile Ala Tyr
      225      230      235      240
Phe Gly Ile Thr Tyr Lys Ala Gln Glu Leu His Pro Pro Ile Tyr Phe
      245      250      255
Asp Asn Ile Ala Gln Val Gln Tyr Asn Tyr Ser Lys Lys Leu Leu Ser
      260      265      270
Asn Glu Ala Ala Ala Leu Leu Leu Arg His Gln Met His Glu
      275      280      285

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&lt;210&gt;1110

&lt;211&gt;504

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1110

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Val Val Gln Leu Pro Leu Met Val Pro Ile Val His Leu Gln Ile Trp
  1      5      10      15
Arg Phe Ser Met Ile Tyr Tyr Gly Val Ser Val Met Leu Cys Ala Thr
      20      25      30
Val Ser Gly Pro Ser Phe Cys Glu Ala Lys Gln Gln Ile Leu Lys Ser
      35      40      45
Leu His Leu Val Asp Ile Ile Glu Leu Arg Leu Asp Leu Ile Asn Glu
      50      55      60
Leu Asp Asp Gln Glu Leu His Thr Leu Ile Thr Thr Ala Gln Asn Pro
      65      70      75      80
Ile Leu Thr Phe Arg Gln His Lys Glu Met Ser Thr Ala Leu Trp Ile
      85      90      95
Gln Lys Leu Tyr Ser Leu Ala Lys Leu Glu Pro Lys Trp Met Asp Ile
      100      105      110
Asp Val Ser Leu Pro Lys Thr Ala Leu Gln Thr Ile Arg Lys Ser His
      115      120      125
Pro Lys Ile Lys Leu Ile Leu Ser Tyr His Thr Asp Lys Asn Glu Asp
      130      135      140
Leu Asp Ala Ile Tyr Asn Glu Met Leu Ala Thr Pro Ala Glu Ile Tyr
      145      150      155      160
Lys Ile Val Leu Ser Pro Glu Asn Ser Ser Glu Ala Leu Asn Tyr Ile
      165      170      175
Lys Lys Ala Arg Leu Leu Pro Lys Pro Ser Thr Val Leu Cys Met Gly
      180      185      190
Thr His Gly Leu Pro Ser Arg Val Leu Ser Pro Leu Ile Ser Asn Ala
      195      200      205
Met Asn Tyr Ala Ala Gly Ile Ser Ala Pro Gln Val Ala Pro Gly Gln
      210      215      220

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Pro Lys Leu Glu Glu Leu Leu Ser Tyr Asn Tyr Ser Lys Leu Ser Glu  
 225 230 235 240  
 Lys Ser His Ile Tyr Gly Leu Ile Gly Asp Pro Val Asp Arg Ser Ile  
 245 250 255  
 Ser His Leu Ser His Asn Phe Leu Leu Ser Lys Leu Ser Leu Asn Ala  
 260 265 270  
 Thr Tyr Ile Lys Phe Pro Val Thr Ile Gly Glu Val Val Thr Phe Phe  
 275 280 285  
 Ser Ala Ile Arg Asp Leu Pro Phe Ser Gly Leu Ser Val Thr Met Pro  
 290 295 300  
 Leu Lys Thr Ala Ile Phe Asp His Val Asp Ala Leu Asp Ala Ser Ala  
 305 310 315 320  
 Gln Leu Cys Glu Ser Ile Asn Thr Leu Val Phe Arg Asn Gln Lys Ile  
 325 330 335  
 Leu Gly Tyr Asn Thr Asp Gly Glu Gly Val Ala Lys Leu Leu Lys Gln  
 340 345 350  
 Lys Asn Ile Ser Val Asn Asn Lys His Ile Ala Ile Val Gly Ala Gly  
 355 360 365  
 Gly Ala Ala Lys Ala Ile Ala Ala Thr Leu Ala Met Gln Gly Ala Asn  
 370 375 380  
 Leu His Ile Phe Asn Arg Thr Leu Ser Ser Ala Ala Ala Leu Ala Thr  
 385 390 395 400  
 Cys Cys Lys Gly Lys Ala Tyr Pro Leu Gly Ser Leu Glu Asn Phe Lys  
 405 410 415  
 Thr Ile Asp Ile Ile Ile Asn Cys Leu Pro Pro Glu Val Thr Phe Pro  
 420 425 430  
 Trp Arg Phe Pro Pro Ile Val Met Asp Ile Asn Thr Lys Pro His Pro  
 435 440 445  
 Ser Pro Tyr Leu Glu Arg Ala Gln Lys His Gly Ser Leu Ile Ile His  
 450 455 460  
 Gly Tyr Glu Met Phe Ile Glu Gln Ala Leu Leu Gln Phe Ala Leu Trp  
 465 470 475 480  
 Phe Pro Asp Phe Leu Thr Pro Glu Ser Cys Asp Ser Phe Arg Asn Tyr  
 485 490 495  
 Val Lys Asn Phe Met Ala Lys Val  
 500

&lt;210&gt;1111

&lt;211&gt;384

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1111

Met Leu Gln Thr Ile Met Ser Glu Thr Ile Ile Thr Thr Pro His Val  
 1 5 10 15  
 Val Lys Leu Ile Ser Asn Phe Phe Gln Lys Lys Leu Phe Ser Ser Ile  
 20 25 30  
 Ser Thr Ala Tyr Pro Leu Val Ile Ile Thr Asp Val Ser Val Gln Gln  
 35 40 45  
 His Leu Leu Gly Pro Ile Leu Asp His Ile Lys Met Leu Gly Tyr Gln  
 50 55 60  
 Val Ile Val Leu Thr Phe Pro Pro Gly Glu Pro Asn Lys Thr Trp Glu  
 65 70 75 80  
 Thr Phe Ile Ser Leu Gln Tyr Gln Leu Val Asp Gln Asn Ile Ser Pro  
 85 90 95  
 Lys Ser Ser Ile Ile Gly Ile Gly Gly Thr Val Leu Asp Met Thr  
 100 105 110  
 Gly Phe Leu Ala Ala Thr Tyr Cys Arg Gly Leu Pro Leu Tyr Leu Ile  
 115 120 125  
 Pro Thr Thr Ile Thr Ala Met Val Asp Thr Ser Ile Gly Gly Lys Asn  
 130 135 140  
 Gly Ile Asn Leu Arg Gly Ile Lys Asn Arg Leu Gly Thr Phe Tyr Leu  
 145 150 155 160  
 Pro Lys Glu Val Trp Met Cys Pro Gln Phe Leu Ser Thr Leu Pro Arg  
 165 170 175  
 Glu Glu Trp Tyr His Gly Ile Ala Glu Ala Ile Lys His Gly Phe Ile

180 185 190  
 Ala Asp Ala Tyr Leu Trp Glu Phe Leu Asn Ser His Ser Lys Met Leu  
 195 200 205  
 Phe Ser Ser Ser Gln Ile Leu His Glu Phe Ile Lys Arg Asn Cys Gln  
 210 215 220  
 Ile Lys Ala Ala Ile Val Ala Glu Asp Pro Tyr Asp Arg Ser Leu Arg  
 225 230 235 240  
 Lys Ile Leu Asn Phe Gly His Ser Ile Ala His Ala Ile Glu Thr Leu  
 245 250 255  
 Ala Lys Gly Thr Val Asn His Gly Gln Ala Val Ser Val Gly Met Met  
 260 265 270  
 Ile Glu Thr Arg Ile Ser Leu Ala Glu Gly Val Met Lys Thr Pro Gln  
 275 280 285  
 Leu Ile Asp Gln Leu Glu Arg Leu Leu Lys Arg Phe Asn Leu Pro Ser  
 290 295 300  
 Thr Leu Lys Asp Leu Gln Ser Ile Val Pro Glu His Leu His Asn Ser  
 305 310 315 320  
 Leu Tyr Ser Pro Glu Asn Ile Ile Tyr Thr Leu Gly Tyr Asp Lys Lys  
 325 330 335  
 Asn Leu Ser Gln His Glu Leu Lys Met Ile Met Ile Glu His Leu Gly  
 340 345 350  
 Arg Ala Ala Pro Phe Asn Gly Thr Tyr Cys Ala Ser Pro Asn Met Glu  
 355 360 365  
 Ile Leu Tyr Asp Ile Leu Trp Ser Glu Cys His Val Met Arg His Cys  
 370 375 380

&lt;210&gt;1112

&lt;211&gt;376

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1112

Thr Ser Val Ser Arg Ser His Tyr Leu Val Lys Val Met Lys Asn Ser  
 1 5 10 15  
 Phe Gly Ser Leu Phe Ser Phe Thr Thr Trp Gly Glu Ser His Gly Pro  
 20 25 30  
 Ser Ile Gly Val Val Ile Asp Gly Cys Pro Ala Gly Leu Glu Leu His  
 35 40 45  
 Glu Ser Asp Phe Val Pro Ala Met Lys Arg Arg Arg Pro Gly Asn Pro  
 50 55 60  
 Gly Thr Ser Ser Arg Lys Glu Asn Asp Ile Val Gln Ile Leu Ser Gly  
 65 70 75 80  
 Val Tyr Lys Gly Lys Thr Thr Gly Thr Pro Leu Ser Leu Gln Ile Leu  
 85 90 95  
 Asn Thr Asp Val Asp Ser Ser Pro Tyr Glu Asn Ser Glu Arg Leu Tyr  
 100 105 110  
 Arg Pro Gly His Ser Gln Tyr Thr Tyr Glu Lys Lys Phe Gly Ile Val  
 115 120 125  
 Asp Pro Asn Gly Gly Gly Arg Ser Ser Ala Arg Glu Thr Ala Cys Arg  
 130 135 140  
 Val Ala Ala Gly Val Val Ala Glu Lys Phe Leu Ala Asn Gln Asn Ile  
 145 150 155 160  
 Phe Thr Leu Ala Tyr Leu Ser Ser Leu Gly Ser Leu Thr Leu Pro His  
 165 170 175  
 Tyr Leu Lys Ile Ser Pro Glu Leu Ile His Lys Ile His Thr Ser Pro  
 180 185 190  
 Phe Tyr Ser Pro Leu Pro Asn Glu Lys Ile Gln Glu Ile Leu Thr Ser  
 195 200 205  
 Leu His Asp Asp Ser Asp Ser Leu Gly Gly Val Ile Ser Phe Ile Thr  
 210 215 220  
 Ser Pro Ile His Asp Phe Leu Gly Glu Pro Leu Phe Gly Lys Val His  
 225 230 235 240  
 Ala Leu Leu Ala Ser Ala Leu Met Ser Ile Pro Ala Ala Lys Gly Phe  
 245 250 255  
 Glu Ile Gly Lys Gly Phe Ala Ser Ala Gln Met Arg Gly Ser Gln Tyr  
 260 265 270

Thr Asp Pro Phe Val Met Glu Gly Glu Asn Ile Thr Leu Lys Ser Asn  
 275 280 285  
 Asn Cys Gly Gly Thr Leu Gly Gly Ile Thr Ile Gly Val Pro Ile Glu  
 290 295 300  
 Gly Arg Ile Ala Phe Lys Pro Thr Ser Ser Ile Lys Arg Pro Cys Ala  
 305 310 315 320  
 Thr Val Thr Lys Thr Lys Lys Glu Thr Thr Tyr Arg Thr Pro Gln Thr  
 325 330 335  
 Gly Arg His Asp Pro Cys Val Ala Ile Arg Ala Val Pro Val Val Glu  
 340 345 350  
 Ala Met Ile Asn Leu Val Leu Ala Asp Leu Val Leu Tyr Gln Arg Cys  
 355 360 365  
 Ser Lys Leu Ser Cys Gln Arg Gln  
 370 375

&lt;210&gt;1113

&lt;211&gt;184

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1113

Trp Lys Leu Glu Leu Arg Asn Val Met Thr Ile Ile Leu Cys Gly Leu  
 1 5 10 15  
 Pro Thr Ser Gly Lys Ser Ser Leu Gly Lys Ala Leu Ala Lys Phe Leu  
 20 25 30  
 Asn Leu Pro Phe Tyr Asp Leu Asp Asp Leu Ile Val Ser Asn Tyr Ser  
 35 40 45  
 Ser Ala Leu Tyr Ser Ser Ser Ala Glu Ile Tyr Lys Ala Tyr Gly Asp  
 50 55 60  
 Gln Lys Phe Ser Glu Cys Glu Ala Arg Ile Leu Glu Thr Leu Pro Pro  
 65 70 75 80  
 Glu Asp Ala Leu Ile Ser Leu Gly Gly Gly Thr Leu Met Tyr Glu Ala  
 85 90 95  
 Ser Tyr Arg Ala Ile Gln Thr Arg Gly Ala Leu Val Phe Leu Ser Val  
 100 105 110  
 Glu Leu Pro Leu Ile Tyr Glu Arg Leu Glu Lys Arg Gly Leu Pro Glu  
 115 120 125  
 Arg Leu Lys Glu Ala Met Lys Thr Lys Pro Leu Ser Glu Ile Leu Thr  
 130 135 140  
 Glu Arg Ile Asp Arg Met Lys Glu Ile Ala Asp Tyr Ile Phe Pro Val  
 145 150 155 160  
 Asp His Val Asp His Ser Ser Lys Ser Ser Leu Glu Gln Ala Ser Gln  
 165 170 175  
 Asp Leu Ile Thr Leu Leu Lys Ser  
 180

&lt;210&gt;1114

&lt;211&gt;449

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1114

Val Cys Phe Thr Met Leu Thr Tyr Lys Val Ser Pro Ser Ser Val Tyr  
 1 5 10 15  
 Gly Asn Ala Phe Ile Pro Ser Ser Lys Ser His Thr Leu Arg Ala Ile  
 20 25 30  
 Leu Trp Ala Ser Val Ala Glu Gly Lys Ser Thr Ile Tyr Asn Tyr Leu  
 35 40 45  
 Asp Ser Pro Asp Thr Glu Ala Met Ile Cys Ala Cys Lys Gln Met Gly  
 50 55 60  
 Ala Ser Ile Lys Lys Phe Pro Gln Ile Leu Glu Ile Val Gly Asn Pro  
 65 70 75 80  
 Leu Ala Ile Phe Pro Lys Tyr Thr Leu Ile Asp Ala Gly Asn Ser Gly  
 85 90 95  
 Ile Val Leu Arg Phe Met Thr Ala Leu Ala Cys Val Phe Ser Lys Glu  
 100 105 110  
 Ile Thr Val Thr Gly Ser Ser Gln Leu Gln Arg Arg Pro Met Ala Pro  
 115 120 125

Leu Leu Gln Ala Leu Arg Asn Phe Gly Ala Ser Phe His Phe Ser Ser  
 130 135 140  
 Asp Lys Ser Val Leu Pro Phe Thr Met Ser Gly Pro Leu Arg Ser Ala  
 145 150 155 160  
 Tyr Ser Asp Val Glu Gly Ser Asp Ser Gln Phe Ala Ser Ala Leu Ala  
 165 170 175  
 Val Ala Cys Ser Leu Ala Glu Gly Pro Cys Ser Phe Thr Ile Ile Glu  
 180 185 190  
 Pro Lys Glu Arg Pro Trp Phe Asp Leu Ser Leu Trp Trp Leu Glu Lys  
 195 200 205  
 Leu His Leu Pro Tyr Ser Cys Ser Asp Thr Thr Tyr Ser Phe Pro Gly  
 210 215 220  
 Ser Ser His Pro Gln Gly Phe Ser Tyr His Val Thr Gly Asp Phe Ser  
 225 230 235 240  
 Ser Ala Ala Phe Ile Ala Ala Ala Ala Leu Leu Ser Lys Ser Leu Gln  
 245 250 255  
 Pro Ile Arg Leu Arg Asn Leu Asp Ile Leu Asp Ile Gln Gly Asp Lys  
 260 265 270  
 Ile Phe Phe Ser Leu Met Gln Asn Leu Gly Ala Ser Ile Gln Tyr Asp  
 275 280 285  
 Asn Glu Glu Ile Leu Val Phe Pro Ser Ser Phe Ser Gly Gly Ser Ile  
 290 295 300  
 Asp Met Asp Gly Cys Ile Asp Ala Leu Pro Ile Leu Thr Val Leu Cys  
 305 310 315 320  
 Cys Phe Ala Asp Ser Pro Ser His Leu Tyr Asn Ala Arg Ser Ser Lys  
 325 330 335  
 Asp Lys Glu Ser Asp Arg Ile Leu Ala Ile Thr Glu Glu Leu Gln Lys  
 340 345 350  
 Met Gly Ala Cys Ile Gln Pro Thr His Asp Gly Leu Leu Val Asn Pro  
 355 360 365  
 Ser Pro Leu Tyr Gly Ala Val Leu Asp Ser His Asp Asp His Arg Ile  
 370 375 380  
 Ala Met Ala Leu Thr Ile Ala Ala Leu Tyr Ala Ser Gly Asp Ser Arg  
 385 390 395 400  
 Ile His Asn Thr Ala Cys Val Arg Lys Thr Phe Pro Asn Phe Val Gln  
 405 410 415  
 Thr Leu Asn Ile Met Glu Ala Arg Ile Glu Glu Cys His Asp Asn Tyr  
 420 425 430  
 Ser Met Trp Ser Thr His Lys Arg Lys Val Phe Ala Arg Glu Ser Phe  
 435 440 445  
 Gly

&lt;210&gt;1115

&lt;211&gt;96

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1115

Arg Cys Glu Gly Glu Ser Ala Lys Gln Gln Arg Thr Val Arg Met Gly  
 1 5 10 15  
 Arg Ala Ser Ile Gln Pro Ser Ile Ser Ile Glu Pro Pro Glu Asn Asp  
 20 25 30  
 Glu Gly Asn Thr Lys Ile Ser Ser Leu Ser Tyr Cys Ile Glu Ala Pro  
 35 40 45  
 Lys Phe Cys Met Arg Glu Lys Lys Ile Leu Ser Pro Trp Ile Ser Lys  
 50 55 60  
 Met Ser Lys Leu Arg Arg Ile Gly Trp Ser Asp Phe Glu Ser Arg  
 65 70 75 80  
 Ala Ala Ala Ala Met Lys Ala Ala Leu Leu Lys Ser Pro Val Thr Trp  
 85 90 95

&lt;210&gt;1116

&lt;211&gt;283

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1116

Arg Pro Ser Gln Ser Leu Phe Leu Arg Thr Trp Ser Pro Ser Ser Ser  
 1 5 10 15  
 Phe Arg Glu His Thr Val Cys Ala Ala Pro Leu Leu Tyr Pro Arg Arg  
 20 25 30  
 Arg Ser Pro Asp Tyr Leu Phe Ser Pro Thr Gly Cys Pro Met Ser Thr  
 35 40 45  
 Thr Thr Val Lys His Phe Ile His Thr Ala Ser Arg Trp Glu Pro Val  
 50 55 60  
 Leu Lys Glu Ile Val Ala Ser Asn Tyr Trp His Ala Gln Trp Ile Asn  
 65 70 75 80  
 Thr Leu Ser Phe Leu Glu Asn Ser Gly Ala Lys Lys Ile Ser Ala Ser  
 85 90 95  
 Glu His Pro Thr Glu Val Lys Glu Glu Val Leu Lys His Ala Ala Glu  
 100 105 110  
 Glu Phe Arg His Gly His Tyr Leu Lys Thr Gln Ile Ser Arg Ile Ser  
 115 120 125  
 Glu Thr Ser Leu Pro Asp Tyr Thr Ser Lys Asn Leu Leu Gly Gly Leu  
 130 135 140  
 Leu Thr Lys Tyr Tyr Leu His Leu Leu Asp Leu Arg Thr Cys Arg Val  
 145 150 155 160  
 Leu Glu Asn Glu Tyr Ser Leu Ser Gly Gln Thr Leu Lys Thr Ala Ala  
 165 170 175  
 Tyr Ile Leu Val Thr Tyr Ala Ile Glu Leu Arg Ala Ser Glu Leu Tyr  
 180 185 190  
 Pro Leu Tyr His Asp Ile Leu Lys Glu Ala Gln Ser Lys Ile Thr Val  
 195 200 205  
 Lys Ser Ile Ile Leu Glu Glu Gln Gly His Leu Gln Glu Met Glu Arg  
 210 215 220  
 Glu Leu Lys Asp Leu Pro His Gly Glu Gly Thr Leu Arg Leu Cys Leu  
 225 230 235 240  
 Pro Ile Arg Arg Gly Ala Leu Leu Ala Val Cys Arg Glu Ile Arg Thr  
 245 250 255  
 Asn Asp Leu Arg Ser Phe Leu Asp Phe Tyr Lys Val Leu Glu Phe Phe  
 260 265 270  
 Leu Asp Asp Lys Ser Glu Val Arg Gln Ile Thr  
 275 280

&lt;210&gt;1117

&lt;211&gt;505

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1117

Leu Val Met Phe Leu Asp Phe Ser Glu Pro Ser Ile Ser Arg Lys Tyr  
 1 5 10 15  
 Gln Ser His Leu Phe Asn Gly Arg Ser Asn Ala Leu Thr Lys Pro Gln  
 20 25 30  
 Tyr Leu Arg Tyr Gly Gly Lys Trp Val Ser Arg Gly Arg Ala Leu  
 35 40 45  
 Ala Asn Ser Arg Asn Gln Ala Ser Tyr Asn Arg Asp Ser Cys Gln Gly  
 50 55 60  
 Lys Arg Asn His Lys Asp Asn His Lys Leu Leu Cys Arg Thr Met Glu  
 65 70 75 80  
 Gly Ser Met Asp Lys Gln Ser Ser Gly Asn Ser Gly Cys Ile Trp His  
 85 90 95  
 Pro Phe Thr Gln Ser Ala Leu Asp Ser Thr Pro Ile Lys Ile Val Arg  
 100 105 110  
 Gly Glu Gly Ala Tyr Leu Tyr Ala Glu Ser Gly Thr Arg Tyr Leu Asp  
 115 120 125  
 Ala Ile Ser Ser Trp Trp Cys Asn Leu His Gly His Gly His Pro Tyr  
 130 135 140  
 Ile Thr Lys Lys Leu Cys Glu Gln Ala Gln Lys Leu Glu His Val Ile  
 145 150 155 160  
 Phe Ala Asn Phe Thr His Glu Pro Ala Leu Glu Leu Val Ser Lys Leu  
 165 170 175  
 Ala Pro Leu Leu Pro Glu Gly Leu Glu Arg Phe Phe Phe Ser Asp Asn

180 185 190  
 Gly Ser Thr Ser Ile Glu Ile Ala Met Lys Ile Ala Val Gln Tyr Tyr  
 195 200 205  
 Tyr Asn Gln Asn Lys Ala Lys Ser His Phe Val Gly Leu Ser Asn Ala  
 210 215 220  
 Tyr His Gly Asp Thr Phe Gly Ala Met Ser Ile Ala Gly Thr Ser Pro  
 225 230 235 240  
 Thr Thr Val Pro Phe His Asp Leu Phe Leu Pro Ser Ser Thr Ile Ala  
 245 250 255  
 Ala Pro Tyr Tyr Gly Lys Glu Glu Leu Ala Ile Ala Gln Ala Lys Thr  
 260 265 270  
 Val Phe Ser Glu Ser Asn Ile Ala Ala Phe Ile Tyr Glu Pro Leu Leu  
 275 280 285  
 Gln Gly Ala Gly Gly Met Leu Met Tyr Asn Pro Glu Gly Leu Lys Glu  
 290 295 300  
 Ile Leu Lys Leu Ala Lys His Tyr Gly Val Leu Cys Ile Ala Asp Glu  
 305 310 315 320  
 Ile Leu Thr Gly Phe Gly Arg Thr Gly Pro Leu Phe Ala Ser Glu Phe  
 325 330 335  
 Thr Asp Ile Pro Pro Asp Ile Ile Cys Leu Ser Lys Gly Leu Thr Gly  
 340 345 350  
 Gly Tyr Leu Pro Leu Ala Leu Thr Val Thr Thr Lys Glu Ile His Asp  
 355 360 365  
 Ala Phe Val Ser Gln Asp Arg Met Lys Ala Leu Leu His Gly His Thr  
 370 375 380  
 Phe Thr Gly Asn Pro Leu Gly Cys Ser Ala Ala Leu Ala Ser Leu Asp  
 385 390 395 400  
 Leu Thr Leu Ser Pro Glu Cys Leu Gln Gln Arg Gln Met Ile Glu Arg  
 405 410 415  
 Cys His Gln Glu Phe Gln Glu Ala His Gly Ser Leu Trp Gln Arg Cys  
 420 425 430  
 Glu Val Leu Gly Thr Val Leu Ala Leu Asp Tyr Pro Ala Glu Ala Thr  
 435 440 445  
 Gly Tyr Phe Ser Gln Tyr Arg Asp His Leu Asn Arg Phe Phe Leu Glu  
 450 455 460  
 Arg Gly Val Leu Leu Arg Pro Leu Gly Asn Thr Leu Tyr Val Leu Pro  
 465 470 475 480  
 Pro Tyr Cys Ile Gln Glu Glu Asp Leu Arg Ile Ile Tyr Ser His Leu  
 485 490 495  
 Gln Asp Ala Leu Cys Leu Gln Pro Gln  
 500 505

&lt;210&gt;1118

&lt;211&gt;219

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1118

Met Gln Arg Ile Ile Ile Val Gly Ile Asp Thr Gly Val Gly Lys Thr  
 1 5 10 15  
 Ile Val Ser Ala Ile Leu Ala Arg Ala Leu Asn Ala Glu Tyr Trp Lys  
 20 25 30  
 Pro Ile Gln Ala Gly Asn Leu Glu Asn Ser Asp Ser Asn Ile Val His  
 35 40 45  
 Glu Leu Ser Gly Ala Tyr Cys His Pro Glu Ala Tyr Arg Leu His Lys  
 50 55 60  
 Pro Leu Ser Pro His Lys Ala Ala Gln Ile Asp Asn Val Ser Ile Glu  
 65 70 75 80  
 Glu Ser His Ile Cys Ala Pro Lys Thr Thr Ser Asn Leu Ile Ile Glu  
 85 90 95  
 Thr Ser Gly Gly Phe Leu Ser Pro Cys Thr Ser Lys Arg Leu Gln Gly  
 100 105 110  
 Asp Val Phe Ser Ser Trp Ser Cys Ser Trp Ile Leu Val Ser Gln Ala  
 115 120 125  
 Tyr Leu Gly Ser Ile Asn His Thr Cys Leu Thr Val Glu Ala Met Arg  
 130 135 140



Ser Arg Asn Leu Asn Ile Leu Gly Met Val Val Asn Gly Tyr Pro Glu  
 145 150 155 160  
 Asp Glu Glu His Trp Leu Thr Gln Glu Ile Lys Leu Pro Ile Ile Gly  
 165 170 175  
 Thr Leu Ala Lys Glu Lys Glu Ile Thr Lys Thr Ile Ile Ser Cys Tyr  
 180 185 190  
 Ala Glu Gln Trp Lys Glu Val Trp Thr Ser Asn His Gln Gly Ile Gln  
 195 200 205  
 Gly Val Ser Gly Thr Pro Ser Leu Asn Leu His  
 210 215

&lt;210&gt;1119

&lt;211&gt;383

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1119

Pro Met Leu Cys Gln Gln Phe Leu Ile Glu Ala Leu Ala Arg Arg Lys  
 1 5 10 15  
 Ser Lys His Thr Tyr Arg Ser Leu Ser Leu Asn Ser His Leu Ile Asp  
 20 25 30  
 Phe Thr Ser Asn Asp Tyr Leu Gly Phe Ala Ser Ser Pro Glu Leu Arg  
 35 40 45  
 Lys Glu Tyr Ile Thr Lys Leu His Ala Ile Glu Ser Leu Gly Ala Thr  
 50 55 60  
 Gly Ser Arg Leu Leu Thr Gly His Ser Gln Leu Cys Gln Arg Ile Glu  
 65 70 75 80  
 Glu Gln Leu Ala Ala Tyr His Asn Phe Glu Ser Cys Leu Ile Phe Asn  
 85 90 95  
 Thr Gly Tyr Thr Ala Asn Leu Gly Leu Tyr Ala Leu Ala Thr Asp  
 100 105 110  
 Gln Asp Arg Ile Leu His Asp Leu Tyr Ile His Ala Ser Ile Tyr Asp  
 115 120 125  
 Gly Ile Arg Leu Ser Lys Ala Gln Ser Phe Pro Phe Asn His Asn Asp  
 130 135 140  
 Leu Asn His Leu Glu Lys Arg Leu Ala Ser Ser His Leu Gly Arg Thr  
 145 150 155 160  
 Phe Val Cys Val Glu Ser Val Tyr Ser Leu His Gly Ser Val Ala Pro  
 165 170 175  
 Leu Gln Ala Ile Ser Glu Leu Cys Glu Arg Tyr Ser Ala Tyr Leu Ile  
 180 185 190  
 Val Asp Glu Ala His Ala Val Gly Val Phe Gly Asp Gln Gly Glu Gly  
 195 200 205  
 Leu Val Ser Ala Leu Gly Leu Gln Asp Lys Val Leu Ala Thr Val Tyr  
 210 215 220  
 Thr Phe Gly Lys Ala Leu Gly Thr His Gly Ala Ala Ile Ala Gly Ser  
 225 230 235 240  
 Ser Ile Leu Lys Asp Tyr Leu Ile Asn Phe Cys Arg Pro Phe Ile Tyr  
 245 250 255  
 Thr Thr Ala Gln Pro Pro His Ala Leu Thr Ala Ile Glu Leu Ala Tyr  
 260 265 270  
 Glu His Asn Gln Arg Ala Phe Asn Gln Arg Glu His Leu Ser Ala Leu  
 275 280 285  
 Ile His His Phe Arg Glu Lys Ala Gln Asn Leu Gly Leu Gln Leu Met  
 290 295 300  
 Lys Asp Asn Thr Thr Thr Pro Ile Gln Ser Ile Cys Val Ser Gly Ser  
 305 310 315 320  
 His Arg Ala Arg Gln Ala Ala Leu Gln Ile Gln Asn Ser Gly Tyr Asp  
 325 330 335  
 Val Arg Pro Ile Val Ser Pro Thr Val Lys Gln Arg Glu Glu Leu Leu  
 340 345 350  
 Arg Ile Cys Leu His Ala Phe Asn Thr Lys Asn Glu Ile Asp His Leu  
 355 360 365  
 Leu His Thr Leu Glu Gln Ile Phe Leu Cys Asn Val Ser Ser Leu  
 370 375 380

&lt;210&gt;1120

&lt;211&gt;334

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1120

Ala Lys His Met Arg Glu Glu Thr Val Ser Trp Ser Leu Glu Asp Ile  
 1 5 10 15  
 Arg Glu Ile Tyr His Thr Pro Val Phe Glu Leu Ile His Lys Ala Asn  
 20 25 30  
 Ala Ile Leu Arg Ser Asn Phe Leu His Ser Glu Leu Gln Thr Cys Tyr  
 35 40 45  
 Leu Ile Ser Ile Lys Thr Gly Gly Cys Val Glu Asp Cys Ala Tyr Cys  
 50 55 60  
 Ala Gln Ser Ser Arg Tyr His Thr His Val Thr Pro Glu Pro Met Met  
 65 70 75 80  
 Lys Ile Val Asp Val Glu Arg Ala Lys Arg Ala Val Glu Leu Gly  
 85 90 95  
 Ala Thr Arg Val Cys Leu Gly Ala Ala Trp Arg Asn Ala Lys Asp Asp  
 100 105 110  
 Arg Tyr Phe Asp Arg Val Leu Ala Met Val Lys Ser Ile Thr Asp Leu  
 115 120 125  
 Gly Ala Glu Val Cys Cys Ala Leu Gly Met Leu Ser Glu Glu Gln Ala  
 130 135 140  
 Lys Lys Leu Tyr Asp Ala Gly Leu Tyr Ala Tyr Asn His Asn Leu Asp  
 145 150 155 160  
 Ser Ser Pro Glu Phe Tyr Glu Thr Ile Ile Thr Thr Arg Ser Tyr Glu  
 165 170 175  
 Asp Arg Leu Asn Thr Leu Asp Val Val Asn Lys Ser Gly Ile Ser Thr  
 180 185 190  
 Cys Cys Gly Gly Ile Val Gly Met Gly Glu Ser Glu Glu Asp Arg Ile  
 195 200 205  
 Lys Leu Leu His Val Leu Ala Thr Arg Asp His Ile Pro Glu Ser Val  
 210 215 220  
 Pro Val Asn Leu Leu Trp Pro Ile Asp Gly Thr Pro Leu Gln Asp Gln  
 225 230 235 240  
 Pro Pro Ile Ser Phe Trp Glu Val Leu Arg Thr Ile Ala Thr Ala Arg  
 245 250 255  
 Val Val Phe Pro Arg Ser Met Val Arg Leu Ala Ala Gly Arg Ala Phe  
 260 265 270  
 Leu Thr Val Glu Gln Gln Thr Leu Cys Phe Leu Ala Gly Ala Asn Ser  
 275 280 285  
 Ile Phe Tyr Gly Asp Lys Leu Leu Thr Val Glu Asn Asn Asp Ile Asp  
 290 295 300  
 Glu Asp Ala Glu Met Ile Lys Leu Leu Gly Leu Ile Pro Arg Pro Ser  
 305 310 315 320  
 Phe Gly Ile Glu Arg Gly Asn Pro Cys Tyr Ala Asn Asn Ser  
 325 330

&lt;210&gt;1121

&lt;211&gt;259

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1121

Ser Glu Phe Met Val Ser Thr Pro Phe Leu Thr Val Phe Ser Met Glu  
 1 5 10 15  
 Lys Leu Leu Ser Lys Ile Phe Leu Asp Tyr Leu Glu Ala Phe Gly Leu  
 20 25 30  
 Leu Ser Asp Phe Leu Asp His Gln Ala Val Ile Lys Phe Phe Glu Leu  
 35 40 45  
 Glu Thr His Phe Ser Tyr Tyr Pro Val Ser Gly Phe Val Ala Pro His  
 50 55 60  
 Gln Tyr Leu Ser Leu Leu Gln Asp Arg Tyr Phe Pro Ile Ala Ser Val  
 65 70 75 80  
 Met Arg Thr Leu Asp Lys Asp Asn Phe Ser Leu Thr Pro Asp Leu Ile  
 85 90 95  
 His Asp Leu Leu Gly His Val Pro Trp Leu Leu His Pro Ser Phe Ser

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      100      105      110
Glu Phe Phe Ile Asn Met Gly Arg Leu Phe Thr Lys Val Ile Glu Lys
      115      120      125
Val Gln Ala Leu Pro Ser Lys Lys Gln Arg Ile Gln Thr Leu Gln Ser
      130      135      140
Asn Leu Ile Ala Ile Val Arg Cys Phe Trp Phe Thr Val Glu Ser Gly
145      150      155
Leu Ile Glu Asn His Glu Gly Arg Lys Ala Tyr Gly Ala Val Leu Ile
      165      170      175
Ser Ser Pro Gln Glu Leu Gly His Ala Phe Ile Asp Asn Val Arg Val
      180      185      190
Leu Pro Leu Glu Leu Asp Gln Ile Ile Arg Leu Pro Phe Asn Thr Ser
      195      200      205
Thr Pro Gln Glu Thr Leu Phe Ser Ile Arg His Phe Asp Glu Leu Val
      210      215      220
Glu Leu Thr Ser Lys Leu Glu Trp Met Leu Asp Gln Gly Leu Leu Glu
225      230      235
Ser Ile Pro Leu Tyr Asn Gln Glu Lys Tyr Leu Ser Gly Phe Glu Val
      245      250      255
Leu Cys Gln

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&lt;210&gt;1122

&lt;211&gt;264

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1122

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Met Gly Ser Ser Met His Val Gly Val Ile Gly Cys Ser Gly Arg Thr
  1      5      10      15
Gly Lys Val Ile Val Ser Ala Leu Glu Gln Ser Ser Glu Tyr Thr Leu
      20      25      30
Gly Pro Gly Phe Ser Arg Ser Ser Ala Leu Thr Leu Phe Gln Val Ile
      35      40      45
Ala His Asn Asp Val Leu Val Asp Phe Ser His Pro Leu Leu Thr Lys
      50      55      60
Glu Val Val Ala His Leu Leu Ile Ser Pro Lys Pro Leu Ile Ile Gly
      65      70      75      80
Thr Thr Gly Phe Pro Gly Lys Cys Lys Glu Ala His Asp Ser Leu Glu
      85      90      95
Glu Leu Thr His Ile Val Pro Val Val Cys Pro Asn Ala Ser Leu
      100      105      110
Gly Ala Tyr Ile His Lys Arg Leu Val Met Leu Leu Ser Gln Leu Cys
      115      120      125
Asn Pro Gln Phe Asp Ile Arg Ile Arg Glu Thr His His Arg Tyr Lys
      130      135      140
Lys Asp Ser Leu Ser Gly Thr Ala Gln Asp Leu Leu Asp Thr Ile Gln
145      150      155
Gln Val Lys Gln Glu Asp Trp Gly Glu Glu Tyr Glu Val Gly Gln Arg
      165      170      175
Asp Ser Ser Lys Lys Thr Ile Glu Val Gln Ser Ser Arg Val Gly Asp
      180      185      190
Ile Pro Gly Glu His Glu Val Ala Phe Ile Ser Ser Gly Glu Gln Ile
      195      200      205
Leu Val Arg His Thr Val Phe Ser Arg Asn Val Phe Gly Arg Gly Ile
      210      215      220
Leu Ser Ile Leu Asp Trp Leu Lys Thr Leu Asn Pro Gln Pro Gly Leu
225      230      235
Tyr Ser Leu Gly Asp Thr Leu Glu Leu Val Leu Arg Asn Glu His Cys
      245      250      255
Leu Leu Lys Lys Thr Thr Asp His
      260

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&lt;210&gt;1123

&lt;211&gt;295

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1123

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Ile Trp Ala Ile Val Trp Arg Cys Leu Tyr Leu Ala Gly Ala Ile Gly
 1           5           10           15
Pro Met Pro Glu Met Val Arg Asp Leu Pro Ile Arg Lys Ile Glu Glu
          20           25           30
Val Gln Ser Asp Ile Val Val Ser Phe Leu Pro Ser Ser Ala Glu Ser
          35           40           45
Met Glu Ala Tyr Cys Leu Ser Gln Gly Lys Val Val Phe Ser Asn Ala
 50           55           60
Ser Thr Tyr Arg Met His Ser Ser Val Pro Ile Ile Ile Pro Glu Val
 65           70           75           80
Asn Ser Asp His Phe Gln Leu Leu Glu Glu Gln Pro Tyr Pro Gly Lys
          85           90           95
Ile Ile Thr Ser Pro Asn Cys Cys Val Ser Gly Ile Thr Leu Ala Leu
          100          105          110
Ala Pro Leu Arg Lys Phe Ser Leu Asp His Val His Ile Val Thr Leu
          115          120          125
Gln Ser Ala Ser Gly Ala Gly Tyr Pro Gly Val Pro Ser Leu Asp Leu
          130          135          140
Leu Ala Asn Thr Val Pro His Ile Val Gly Glu Glu Glu Lys Ile Leu
          145          150          155          160
Arg Glu Thr Val Lys Ile Leu Gly Ser Ser Lys Gln Pro Leu Pro Cys
          165          170          175
Lys Leu Ser Val Thr Val His Arg Val Pro Val Ala Tyr Gly His Thr
          180          185          190
Leu Ser Leu His Val Thr Phe Ser Lys Asp Val Asp Leu Asp Glu Ile
          195          200          205
Leu Tyr Ser Tyr Gln Glu Lys Asn Lys Glu Phe Pro Asn Thr Tyr Gln
          210          215          220
Leu Tyr Asp Asn Pro Trp Ser Pro Gln Ala Arg Lys His Leu Ser His
          225          230          235          240
Asp Asp Met Arg Val His Leu Gly Pro Ile Thr Tyr Gly Gly Asp Phe
          245          250          255
Arg Thr Ile Lys Met Asn Val Leu Ile His Asn Leu Val Arg Gly Ala
          260          265          270
Ala Gly Thr Leu Leu Ala Ser Met Glu Asn Tyr Phe Phe Asp Tyr Leu
          275          280          285
Lys Arg Glu Met Cys Leu Arg
          290          295

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&lt;210&gt;1124

&lt;211&gt;441

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1124

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Asn Val Ser Lys Ile Val Tyr Lys Phe Gly Gly Thr Ser Leu Ala Thr
 1           5           10           15
Ala Glu Asn Ile Cys Leu Val Cys Asp Ile Ile Cys Lys Asp Lys Pro
          20           25           30
Ser Phe Val Val Val Ser Ala Ile Ala Gly Val Thr Asp Leu Leu Val
          35           40           45
Asp Phe Cys Ser Ser Ser Leu Arg Glu Arg Glu Glu Val Leu Arg Lys
          50           55           60
Ile Glu Gly Lys His Glu Glu Ile Val Lys Asn Leu Ala Ile Pro Phe
          65           70           75           80
Pro Val Ser Thr Trp Thr Ser Arg Leu Leu Pro Tyr Leu Gln His Leu
          85           90           95
Glu Ile Ser Asp Leu Asp Phe Ala Arg Ile Leu Ser Leu Gly Glu Asp
          100          105          110
Ile Ser Ala Ser Leu Val Arg Ala Val Cys Ser Thr Arg Gly Trp Asp
          115          120          125
Leu Gly Phe Leu Glu Ala Arg Ser Val Ile Leu Thr Asp Asp Ser Tyr
          130          135          140
Arg Arg Ala Ser Pro Asn Leu Asp Leu Met Lys Ala His Trp His Gln
          145          150          155          160

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Leu Glu Leu Asn Gln Pro Ser Tyr Ile Ile Gln Gly Phe Ile Gly Ser  
 165 170 175  
 Asn Gly Leu Gly Glu Thr Val Leu Leu Gly Arg Gly Gly Ser Asp Tyr  
 180 185 190  
 Ser Ala Thr Leu Ile Ala Glu Leu Ala Arg Ala Thr Glu Val Arg Ile  
 195 200 205  
 Tyr Thr Asp Val Asn Gly Ile Tyr Thr Met Asp Pro Lys Val Ile Ser  
 210 215 220  
 Asp Ala Gln Arg Ile Pro Glu Leu Ser Phe Glu Glu Met Gln Asn Leu  
 225 230 235 240  
 Ala Ser Phe Gly Ala Lys Val Leu Tyr Pro Pro Met Leu Phe Pro Cys  
 245 250 255  
 Met Arg Ala Gly Ile Pro Ile Phe Val Thr Ser Thr Phe Asp Pro Glu  
 260 265 270  
 Lys Gly Gly Thr Trp Val Tyr Ala Val Asp Lys Ser Val Ser Tyr Glu  
 275 280 285  
 Pro Arg Ile Lys Ala Leu Ser Leu Ser Gln Tyr Gln Ser Phe Cys Ser  
 290 295 300  
 Val Asp Tyr Thr Val Leu Gly Cys Gly Gly Leu Glu Glu Ile Leu Gly  
 305 310 315 320  
 Ile Leu Glu Ser His Gly Ile Asp Pro Glu Leu Met Ile Ala Gln Asn  
 325 330 335  
 Asn Val Val Gly Phe Val Met Asp Asp Asp Ile Ile Ser Gln Glu Ala  
 340 345 350  
 Gln Glu His Leu Val Asp Val Leu Ser Leu Ser Ser Val Thr Arg Leu  
 355 360 365  
 His His Ser Val Ala Leu Ile Thr Met Ile Gly Asp Asn Leu Ser Ser  
 370 375 380  
 Pro Lys Val Val Ser Thr Ile Thr Glu Lys Leu Arg Gly Phe Gln Gly  
 385 390 395 400  
 Pro Val Phe Cys Phe Cys Gln Ser Ser Met Ala Leu Ser Phe Val Val  
 405 410 415  
 Ala Ser Glu Leu Ala Glu Gly Ile Ile Glu Glu Leu His Asn Asp Tyr  
 420 425 430  
 Val Lys Gln Lys Ala Ile Val Ala Thr  
 435 440

&lt;210&gt;1125

&lt;211&gt;271

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1125

Lys Ser Tyr Ser Arg His Val Gly Arg Ile Met His Leu Leu Thr Ala  
 1 5 10 15  
 Thr Val Thr Pro Phe Phe Pro Asn Gly Thr Ile Asp Phe Ala Ser Leu  
 20 25 30  
 Glu Arg Leu Leu Ser Phe Gln Asp Ala Val Gly Asn Gly Val Val Leu  
 35 40 45  
 Leu Gly Ser Thr Gly Glu Gly Leu Ser Leu Thr Lys Lys Glu Lys Gln  
 50 55 60  
 Ala Leu Ile Cys Phe Ala Cys Asp Leu Gln Leu Lys Val Pro Leu Phe  
 65 70 75 80  
 Val Gly Thr Ser Gly Thr Leu Leu Glu Glu Val Leu Asp Trp Ile His  
 85 90 95  
 Phe Cys Asn Asp Leu Pro Ile Ser Gly Phe Leu Met Thr Thr Pro Ile  
 100 105 110  
 Tyr Thr Lys Pro Lys Leu Cys Gly Gln Ile Leu Trp Phe Glu Ala Val  
 115 120 125  
 Leu Asn Ala Ala Lys His Pro Ala Ile Leu Tyr Asn Ile Pro Ser Arg  
 130 135 140  
 Ala Ala Thr Pro Leu Tyr Leu Asp Thr Val Lys Ala Leu Ala His His  
 145 150 155 160  
 Pro Gln Phe Leu Gly Ile Lys Asp Ser Gly Gly Ser Val Glu Glu Phe  
 165 170 175  
 Gln Ser Tyr Lys Ser Ile Ala Pro His Ile Gln Leu Tyr Cys Gly Asp

180 185 190  
 Asp Val Phe Trp Ser Glu Met Ala Ala Cys Gly Ala His Gly Leu Ile  
 195 200 205  
 Ser Val Leu Ser Asn Ala Trp Pro Glu Glu Ala Arg Glu Tyr Val Leu  
 210 215 220  
 Asn Pro Gln Glu Gln Asp Tyr Arg Ser Leu Trp Met Glu Thr Cys Arg  
 225 230 235 240  
 Trp Val Tyr Thr Thr Thr Asn Pro Ile Gly Ile Lys Ala Ile Leu Ala  
 245 250 255  
 Tyr Lys Lys Ala Ile Thr His Ala His Cys Ala Cys Pro Cys Leu  
 260 265 270

&lt;210&gt;1126

&lt;211&gt;256

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1126

Phe Phe Ile Gln Lys Met Lys Tyr Asn Ser Arg Glu Lys Ile Lys Ser  
 1 5 10 15  
 Ala Leu Arg Ile Cys Ser Ser Tyr Cys Ile Thr Val Phe Arg Asn Asn  
 20 25 30  
 Phe Ser Leu Ser Cys Tyr Asp Lys Ile Phe Tyr Ser Leu Ser Cys Tyr  
 35 40 45  
 Val Phe Asn Gly Pro Asn Ser Ile Gly Arg Cys Arg Ser Phe Cys Phe  
 50 55 60  
 Phe Arg Gly Lys Lys Thr Glu Val Glu Thr Lys Glu Val Lys Ile Lys  
 65 70 75 80  
 Asp Glu Ile Arg Pro Ser Leu Glu Gly Asn Asp Pro Val Lys Val Ala  
 85 90 95  
 Glu Ser Phe Pro Lys Arg Arg Ala Ala Leu Glu Ser Leu Ser Ser Gln  
 100 105 110  
 Ser Ser Ile Gly Asn Leu Cys Ala Ile Ser Asn Phe Leu Asp Ser Gln  
 115 120 125  
 Met Leu Ser Arg Asn Phe Ser Lys Glu Ile Trp Gly Ser Thr Ile Phe  
 130 135 140  
 Thr Arg Ser Lys Ser Thr Cys Asp Ala Glu Gly Ser Glu Pro Phe Arg  
 145 150 155 160  
 Tyr Thr Ala Cys Gly Tyr Leu Ala Gly Leu Arg Ser Lys Leu Ala Gly  
 165 170 175  
 Ser Tyr Glu Leu Gly Val Thr Ala Gly Leu Leu Gln Gly Arg Leu Lys  
 180 185 190  
 Asp Val Ser Asp Ser His Arg Thr Arg Ala Thr Ser Ser Ile Leu Ser  
 195 200 205  
 Val His Gly Ser Met Val Thr Arg Pro Leu Ser Cys Thr Lys Tyr Ile  
 210 215 220  
 Val Gly Lys Ala Arg Pro Leu Leu Phe Phe Phe Arg Leu Thr Ser Asp  
 225 230 235 240  
 Val Arg Arg Asp Leu Lys Lys Lys Phe Arg Leu Glu Phe Cys Lys Asp  
 245 250 255

&lt;210&gt;1127

&lt;211&gt;119

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1127

His Ile Leu Phe Tyr Ser Lys Phe Thr Tyr Arg Thr Pro Leu Arg Val  
 1 5 10 15  
 Thr Ser Pro Ser Gly Arg His Asp Phe Asn Ile Asp Met His Val Ala  
 20 25 30  
 Pro Lys Ile Gly Ala Val Leu Ser His Gly Thr Arg Glu Ala Lys Glu  
 35 40 45  
 Ile Pro Gly Ser Ser Lys Asp Tyr Ala Phe Phe Ser Leu Thr Ala Arg  
 50 55 60  
 Glu Ser Leu Met Ile Ser Glu Lys Leu Ala Met Thr Phe Gln Val Ser  
 65 70 75 80  
 Glu Val Ile Gln Asn Cys Tyr Ser Gln Cys Thr Lys Val Thr Lys Thr

85 90 95  
 Asn Leu Lys Glu Gln Tyr Arg His Leu Ser His Asn Thr Gly Phe Glu  
 100 105 110  
 Leu Ser Val Lys Ser Ala Phe  
 115  
 <210>1128  
 <211>810  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1128  
 Cys Lys Tyr Phe Tyr Leu Arg Ser Tyr Pro Pro Pro Gln His Ser Val  
 1 5 10 15  
 Gly Ser Ile Ser Ser Pro Ser Lys Leu Arg Val Leu Ala Ile Thr Phe  
 20 25 30  
 Leu Val Phe Gly Met Leu Leu Leu Ile Ser Gly Ala Leu Phe Leu Thr  
 35 40 45  
 Leu Gly Ile Pro Gly Leu Ser Ala Ala Ile Ser Phe Gly Leu Gly Ile  
 50 55 60  
 Gly Leu Ser Ala Leu Gly Gly Val Leu Met Ile Ser Gly Leu Leu Cys  
 65 70 75 80  
 Leu Leu Val Lys Arg Glu Ile Pro Thr Val Arg Pro Glu Glu Ile Pro  
 85 90 95  
 Glu Gly Val Ser Leu Ala Pro Ser Glu Glu Pro Ala Leu Gln Ala Ala  
 100 105 110  
 Gln Lys Thr Leu Ala Gln Leu Pro Lys Glu Leu Asp Gln Leu Asp Thr  
 115 120 125  
 Asp Ile Gln Glu Val Phe Ala Cys Leu Arg Lys Leu Lys Asp Ser Lys  
 130 135 140  
 Tyr Glu Ser Arg Ser Phe Leu Asn Asp Ala Lys Lys Glu Leu Arg Val  
 145 150 155 160  
 Phe Asp Phe Val Val Glu Asp Thr Leu Ser Glu Ile Phe Glu Leu Arg  
 165 170 175  
 Gln Ile Val Ala Gln Glu Gly Trp Asp Leu Asn Phe Leu Ile Asn Gly  
 180 185 190  
 Gly Arg Ser Leu Met Met Thr Ala Glu Ser Glu Ser Leu Asp Leu Phe  
 195 200 205  
 His Val Ser Lys Arg Leu Gly Tyr Leu Pro Ser Gly Asp Val Arg Gly  
 210 215 220  
 Glu Gly Leu Lys Lys Ser Ala Lys Glu Ile Val Ala Arg Leu Met Ser  
 225 230 235 240  
 Leu His Cys Glu Ile His Lys Val Ala Val Ala Phe Asp Arg Asn Ser  
 245 250 255  
 Tyr Ala Met Ala Glu Lys Ala Phe Ala Lys Ala Leu Gly Ala Leu Glu  
 260 265 270  
 Glu Ser Val Tyr Arg Ser Leu Thr Gln Ser Tyr Arg Asp Lys Phe Leu  
 275 280 285  
 Glu Ser Glu Arg Ala Lys Ile Pro Trp Asn Gly His Ile Thr Trp Leu  
 290 295 300  
 Arg Asp Asp Ala Lys Ser Gly Cys Ala Glu Lys Lys Leu Arg Asp Ala  
 305 310 315 320  
 Glu Glu Arg Trp Lys Lys Phe Arg Lys Ala Val Phe Trp Val Glu Glu  
 325 330 335  
 Asp Gly Gly Phe Asp Ile Asn Asn Leu Leu Gly Asp Trp Gly Thr Val  
 340 345 350  
 Leu Asp Pro Tyr Arg Gln Glu Arg Met Asp Glu Ile Thr Phe His Glu  
 355 360 365  
 Leu Tyr Glu Lys Thr Thr Phe Leu Lys Arg Leu His Arg Lys Cys Ala  
 370 375 380  
 Leu Ala Lys Thr Thr Phe Glu Lys Xaa Arg Ser Lys Lys Asn Leu Gln  
 385 390 395 400  
 Ala Val Xaa Glu Ala Asn Ala Arg Arg Leu Lys Tyr Val Arg Asp Trp  
 405 410 415  
 Tyr Asp Gln Xaa Phe Gln Lys Ala Gly Glu Arg Leu Glu Lys Leu His  
 420 425 430

Ala Leu Tyr Pro Glu Val Ser Val Ser Ile Arg Glu Asn Lys Ile Gln  
 435 440 445  
 Glu Thr Arg Ser Asn Leu Xaa Lys Ala Tyr Glu Ala Ile Glu Xaa Asn  
 450 455 460  
 Tyr Arg Cys Cys Val Arg Glu Gln Glu Asp Tyr Trp Lys Glu Glu Glu  
 465 470 475 480  
 Lys Arg Glu Ala Xaa Phe Arg Glu Arg Gly Asn Xaa Ile Leu Ser Pro  
 485 490 495  
 Glu Glu Leu Glu Xaa Ser Leu Glu Gln Phe Asp His Gly Leu Lys Asn  
 500 505 510  
 Phe Ser Glu Lys Leu Met Glu Leu Glu Gly His Ile Leu Lys Leu Gln  
 515 520 525  
 Lys Glu Ala Thr Ala Glu Val Glu Asn Lys Ile Leu Ser Asp Ala Glu  
 530 535 540  
 Ser Arg Leu Glu Ile Val Phe Glu Asp Val Lys Glu Met Pro Cys Arg  
 545 550 555 560  
 Ile Glu Glu Ile Glu Lys Thr Leu Arg Met Ala Xaa Leu Pro Leu Leu  
 565 570 575  
 Pro Thr Lys Lys Ala Phe Glu Lys Ala Cys Ser Gln Tyr Asn Ser Cys  
 580 585 590  
 Ala Glu Met Leu Glu Lys Val Lys Pro Tyr Cys Lys Glu Ser Leu Ala  
 595 600 605  
 Tyr Val Thr Ser Lys Glu Arg Leu Val Ser Leu Asp Glu Asp Leu Arg  
 610 615 620  
 Arg Ala Tyr Thr Glu Cys Gln Lys Arg Phe Gln Gly Asp Ser Gly Leu  
 625 630 635 640  
 Glu Ser Glu Val Arg Ala Cys Arg Glu Gln Leu Arg Glu Arg Ile Gln  
 645 650 655  
 Glu Phe Glu Thr Gln Gly Leu Asp Leu Val Glu Lys Glu Leu Leu Cys  
 660 665 670  
 Val Ser Ser Arg Leu Arg Asn Thr Glu Cys Asp Cys Val Ser Gly Val  
 675 680 685  
 Lys Lys Glu Ala Pro Pro Gly Lys Lys Phe Tyr Ala Gln Tyr Tyr Asp  
 690 695 700  
 Glu Ile Tyr Arg Val Arg Val Gln Ser Arg Trp Met Thr Met Ser Glu  
 705 710 715 720  
 Arg Leu Arg Glu Gly Val Gln Ala Cys Asn Lys Met Leu Lys Ala Gly  
 725 730 735  
 Leu Ser Glu Glu Asp Lys Val Leu Lys Glu Glu Glu Tyr Trp Leu Tyr  
 740 745 750  
 Arg Glu Glu Arg Lys Asn Lys Glu Lys Arg Leu Val Gly Thr Lys Ile  
 755 760 765  
 Val Ala Thr Gln Gln Arg Val Ala Ala Phe Glu Ser Ile Glu Val Pro  
 770 775 780  
 Glu Ile Pro Glu Ala Pro Glu Glu Lys Pro Ser Leu Leu Asp Lys Ala  
 785 790 795 800  
 Arg Ser Leu Phe Thr Arg Glu Asp His Thr  
 805 810

&lt;210&gt;1129

&lt;211&gt;132

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1129

Val Ala Cys Arg Ala Gly Ser Ser Glu Gly Ala Thr Glu Thr Pro Ser  
 1 5 10 15  
 Gly Ile Ser Ser Gly Arg Thr Val Gly Thr Ser Arg Phe Ala Lys Arg  
 20 25 30  
 His Arg Ser Pro Glu Thr Thr Ser Thr Pro Pro Asn Ala Glu Arg Pro  
 35 40 45  
 Met Pro Asn Pro Lys Glu Ile Ala Ala Leu Asn Pro Glu Ile Pro Asn  
 50 55 60  
 Val Arg Lys Arg Ala Pro Glu Ile Lys Lys Ser Thr Pro Arg Thr Lys  
 65 70 75 80  
 Lys Val Ile Ala Lys Thr Arg Asn Leu Asp Arg Gln Lys Lys Ala Pro



85 90 95  
 Thr Glu Trp Ser Gly Gly Gly Gly Gly Ser Cys Gly Asp Arg Gly Thr  
 100 105 110  
 Cys Ile Met Asn Leu Trp Arg His His Ala Gln Thr His Lys Leu Asn  
 115 120 125  
 Pro Leu Ser Tyr  
 130  
 <210>1130  
 <211>320  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1130  
 Trp Arg His Arg Phe Ile Met Gln Val Pro Leu Ser Pro Gln Leu Pro  
 1 5 10 15  
 Pro Pro Pro Pro Asp His Ser Val Gly Ala Phe Phe Cys Leu Ser Lys  
 20 25 30  
 Phe Arg Val Leu Ala Ile Thr Phe Leu Val Leu Gly Val Leu Phe Leu  
 35 40 45  
 Ile Ser Gly Ala Leu Phe Leu Thr Leu Gly Ile Ser Gly Leu Ser Ala  
 50 55 60  
 Ala Ile Ser Phe Gly Leu Gly Ile Gly Leu Ser Ala Leu Gly Gly Val  
 65 70 75 80  
 Leu Val Val Ser Gly Leu Leu Cys Leu Leu Ala Lys Arg Glu Val Pro  
 85 90 95  
 Thr Val Arg Pro Glu Glu Ile Pro Glu Gly Val Ser Val Ala Pro Ser  
 100 105 110  
 Glu Glu Pro Ala Leu Gln Ala Thr Gln Lys Thr Leu Ala Gln Leu Pro  
 115 120 125  
 Lys Glu Leu Asp Gln Leu Asp Arg Tyr Ile Gln Glu Val Val Ser Cys  
 130 135 140  
 Leu Gly Lys Leu Lys Asp Leu Arg Cys Glu Asp Gln Gly Leu Leu Lys  
 145 150 155 160  
 Asp Ala Lys Glu Lys Leu Gln Val Phe Asp Phe Val Trp Lys Asp Met  
 165 170 175  
 Met Thr Glu Phe Val Glu Leu Gln Gln Ile Met Asp Gln Glu Gly Trp  
 180 185 190  
 Tyr Leu Lys Cys Leu Ile Gln Glu Met Arg Asp Ile Gly Ser Thr Leu  
 195 200 205  
 Phe Met Ser Gln Val Ser Leu Phe Lys Leu Trp Glu Trp Leu Gly Tyr  
 210 215 220  
 Leu Pro Ser Gly Asp Val Arg Gly Glu Arg Leu Lys Lys Ser Ala Arg  
 225 230 235 240  
 Glu Val Val Asp Arg Phe Met Arg Arg Ile Cys Asp Thr Arg Lys Val  
 245 250 255  
 Ala Met Thr Phe Asp Arg Asn Ala Tyr Gly Val Ala Lys Thr Ala Phe  
 260 265 270  
 Glu Lys Ala Phe Gly Ala Leu Glu Thr Cys Val Tyr Lys Ser Met Thr  
 275 280 285  
 Glu Ser Tyr Arg Glu Ala Phe Cys Glu Tyr Lys Lys Thr Lys Ile Leu  
 290 295 300  
 Arg Asp Glu Glu Lys Ile Leu Arg Ile Cys Tyr Leu Glu Leu Arg Arg  
 305 310 315 320  
 <210>1131  
 <211>249  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1131  
 Gly Glu Asp Ile Lys Asp Met Leu Ser Arg Val Glu Glu Ile Glu Met  
 1 5 10 15  
 Met Leu Arg Val Ile Glu Leu Pro Leu Leu Pro Ile Lys Gln Ala Leu  
 20 25 30  
 Glu Lys Ala Phe Val Gln Tyr Asn Ser Tyr Lys Ala Lys Leu Thr Lys  
 35 40 45  
 Val Glu Pro Cys Phe Arg Glu Ser Pro Ala Tyr Ile Thr Ser Glu Glu

50 55 60  
 Arg Leu Xaa Ser Leu Asp Gln Thr Leu Glu Arg Ala Tyr Lys Glu Tyr  
 65 70 75 80  
 Gln Lys Arg Phe Gln Glu Pro Ser Arg Leu Glu Ser Glu Val Ser Gly  
 85 90 95  
 Cys Arg Glu His Leu Arg Glu Gln Val Lys Gln Phe Glu Thr Gln Gly  
 100 105 110  
 Leu Asp Leu Ile Lys Glu Glu Leu Ile Phe Val Ser Asp Val Leu Phe  
 115 120 125  
 Arg Lys Met Val Ser Cys Leu Val Ser Thr Val His Val Pro Phe Met  
 130 135 140  
 Glu Phe Tyr Tyr Glu Tyr Phe Glu Leu His Arg Leu Arg Leu Arg Ala  
 145 150 155 160  
 Gln Trp Met Ala Asn Ala Glu Ile Tyr Ser Lys Val Arg Lys Ala Phe  
 165 170 175  
 Pro Glu Met Leu Lys Glu Thr Leu Glu Lys Ala Lys Ala Pro Arg Glu  
 180 185 190  
 Glu Glu Tyr Trp Leu Leu Cys Glu Glu Arg Lys Ser Lys Glu Lys Arg  
 195 200 205  
 Leu Ile Leu Asn Lys Ile Glu Ala Ala Gln Gln Arg Val Lys Asp Leu  
 210 215 220  
 Glu Pro Pro Pro Ile Lys Glu Thr Gly Lys Gln Lys Arg Lys Lys Glu  
 225 230 235 240  
 Tyr Ser Phe Phe Ile Arg Leu Lys Ser  
 245

&lt;210&gt;1132

&lt;211&gt;679

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1132

Met Pro Glu Pro Leu Tyr Thr Asn Lys Leu Ile Thr Glu Lys Ser Pro  
 1 5 10 15  
 Tyr Leu Leu Leu Tyr Ala His Thr Pro Val Asn Trp Tyr Pro Trp Gly  
 20 25 30  
 Ala Glu Ala Phe His Ile Ala Ala Ile Glu Asn Lys Pro Val Phe Leu  
 35 40 45  
 Ser Ile Gly Cys Lys His Ser Arg Trp Cys Gln Val Met Leu Gln Glu  
 50 55 60  
 Ser Tyr Thr Asn Pro Glu Ile Ala Ala Met Leu Asn Glu Tyr Phe Val  
 65 70 75 80  
 Asn Val Lys Val Asp Lys Glu Glu Leu Pro Tyr Val Ala Lys Leu Tyr  
 85 90 95  
 Gly Asp Leu Ala Gln Met Leu Ala Val Ser Gly Asp His Gln Glu Thr  
 100 105 110  
 Val Ser Trp Pro Leu Asn Val Phe Leu Thr Pro Asp Leu Val Pro Phe  
 115 120 125  
 Phe Ser Val Asn Tyr Leu Gly Asn Glu Gly Lys Leu Gly Leu Pro Ser  
 130 135 140  
 Phe Pro Gln Ile Ile Asp Lys Leu His Phe Met Trp Glu Asp Ala Glu  
 145 150 155 160  
 Glu Arg Glu Ala Leu Val Glu Gln Ala Met Arg Phe Leu Glu Ile Ala  
 165 170 175  
 Ser Phe Leu Glu Gly Cys Val Arg Lys Glu Ile Leu Asp Glu Ser Ser  
 180 185 190  
 Leu Lys Arg Thr Val Ala Ala Leu Tyr Gln Asp Ile Asp Pro His Tyr  
 195 200 205  
 Gly Gly Val Lys Ala Phe Pro Lys Arg Leu Pro Gly Leu Leu Leu Gln  
 210 215 220  
 Phe Phe Leu Arg Tyr Ser Leu Glu Tyr Gln Glu Ser Arg Gly Leu Phe  
 225 230 235 240  
 Phe Val Asp Arg Ser Leu Ser Met Val Ala Leu Gly Gly Val Arg Asp  
 245 250 255  
 His Ile Gly Gly Val Tyr Ser Tyr Thr Ile Asp Asp Lys Trp Leu  
 260 265 270

Ile Pro Ala Phe Glu Lys Arg Leu Ile Asp Asn Ala Leu Met Ala Leu  
 275 280 285  
 Asn Tyr Leu Glu Ala Trp Ala Cys Leu Gly Lys Glu Glu Tyr Arg Gly  
 290 295 300  
 Ile Gly Lys Gln Ile Leu Ser Tyr Ile Leu Ser Glu Leu Tyr Ser Pro  
 305 310 315 320  
 Glu Val Gly Ala Phe Tyr Ser Ser Glu Gln Ala Glu Asn Trp Gly Ala  
 325 330 335  
 Gly Gly Gln Asn Phe Tyr Thr Trp Ser Val Glu Glu Ile Ser Asn Ala  
 340 345 350  
 Leu Gly Glu Asp Ala Glu Ile Phe Cys Asp Tyr Tyr Gly Ile Ser Arg  
 355 360 365  
 Glu Gly Phe Phe Asn Gly Arg Asn Ile Leu His Ile Pro Val His Arg  
 370 375 380  
 Glu Ile Glu Glu Leu Ser Glu Lys Tyr His Arg Ser Ile Glu Ala Ile  
 385 390 395 400  
 Glu Asp Ile Val Asp Arg Ser Arg Asp Ile Leu Lys Gly Ile Arg Ala  
 405 410 415  
 Gln Arg Ser His Arg Ser Lys Asp Asp Leu Ser Leu Thr Phe Asn Asn  
 420 425 430  
 Gly Trp Met Ile Tyr Thr Phe Ala Tyr Ala Gly Arg Leu Leu Gly Glu  
 435 440 445  
 Val Glu Tyr Ile Glu Ile Glu Lys Lys Cys Gly Glu Phe Val Arg Asn  
 450 455 460  
 Ser Leu Tyr Lys His His Glu Leu Tyr Arg Arg Trp Arg Glu Gly Glu  
 465 470 475 480  
 Ala Lys Tyr Arg Ala Ser Leu Glu Asp Tyr Gly Ala Leu Ile Leu Gly  
 485 490 495  
 Val Leu Ala Leu Tyr Glu Ser Gly Cys Gly Ser Phe Trp Leu Ser Phe  
 500 505 510  
 Ala Glu Glu Leu Met Gln Glu Val Leu Ser Phe Arg Ser Glu Glu  
 515 520 525  
 Gly Gly Phe Tyr Ser Asp Asp Gly Arg Asp Ser Thr Leu Leu Ile Lys  
 530 535 540  
 Gln Ser Pro Leu Ser Asp Gly Glu Thr Ile Ser Gly Asn Ala Leu Ile  
 545 550 555 560  
 Cys Gln Cys Leu Leu Ser Leu His Leu Ile Thr Glu Lys Lys His Tyr  
 565 570 575  
 Leu Thr Tyr Ala Glu Asp Ile Leu Gln Ile Ala Gln Ala Cys Ala His  
 580 585 590  
 Thr His Lys Phe Ser Ser Leu Gly Leu Leu Ile Ala Ser Gln Asn Tyr  
 595 600 605  
 Phe Ser Arg Lys His Val Lys Val Leu Ile Pro Leu Gly Asp Gln Glu  
 610 615 620  
 Asp Arg Ser Pro Val Leu Lys Cys Leu Ser Gly Leu Phe Leu Pro Tyr  
 625 630 635 640  
 Leu Ser Leu Ile Trp Met Thr Gln Glu Asn Gln Glu His Leu Glu Thr  
 645 650 655  
 Val Leu Pro Glu Tyr Glu His Cys Leu Ile Pro Lys Arg Gly Ile Ala  
 660 665 670  
 Gln Leu Arg Gln Phe Met Phe  
 675  
 <210>1133  
 <211>365  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1133  
 Glu Val Met Lys Leu Tyr Gln Thr Leu Arg Gly Ile Val Leu Val Ser  
 1 5 10 15  
 Thr Gly Cys Ile Phe Leu Gly Met His Gly Gly Tyr Ala Ala Glu Val  
 20 25 30  
 Pro Val Thr Ser Ser Gly Tyr Glu Asn Leu Leu Glu Ser Lys Glu Gln  
 35 40 45  
 Asp Pro Ser Gly Leu Ala Ile His Asp Arg Ile Leu Phe Lys Val Asp

50 55 60  
 Glu Glu Asn Val Val Thr Ala Leu Asp Val Ile His Lys Leu Asn Leu  
 65 70 75 80  
 Leu Phe Tyr Asn Ser Tyr Pro His Leu Ile Asp Ser Phe Pro Ala Arg  
 85 90 95  
 Ser Gln Tyr Tyr Thr Ala Met Trp Pro Val Val Leu Glu Ser Val Ile  
 100 105 110  
 Asp Glu Phe Leu Met Val Ala Asp Ala Lys Ala Lys Arg Ile Ala Thr  
 115 120 125  
 Asp Pro Thr Ala Val Asn Gln Glu Ile Glu Glu Met Phe Gly Arg Asp  
 130 135 140  
 Leu Ser Pro Leu Tyr Ala His Phe Glu Met Ser Pro Asn Asp Ile Phe  
 145 150 155 160  
 Asn Val Ile Asp Arg Thr Leu Thr Ala Gln Arg Val Met Gly Met Met  
 165 170 175  
 Val Arg Ser Lys Val Met Leu Lys Val Thr Pro Gly Lys Ile Arg Glu  
 180 185 190  
 Tyr Tyr Arg Lys Leu Glu Glu Glu Ala Ser Arg Lys Val Ile Trp Lys  
 195 200 205  
 Tyr Arg Val Leu Thr Ile Lys Ala Asn Thr Glu Ser Leu Ala Ser Gln  
 210 215 220  
 Ile Ala Asp Lys Val Arg Ala Arg Leu Asn Glu Ala Lys Thr Trp Asp  
 225 230 235 240  
 Lys Asp Arg Leu Thr Ala Leu Val Ile Ser Gln Gly Gly Gln Leu Val  
 245 250 255  
 Cys Ser Glu Glu Phe Ser Arg Glu Asn Ser Glu Leu Ser Gln Ser His  
 260 265 270  
 Lys Gln Glu Leu Asp Leu Ile Gly Tyr Pro Lys Glu Leu Cys Gly Leu  
 275 280 285  
 Pro Lys Ala His Lys Ser Gly Tyr Lys Leu Tyr Met Leu Leu Asp Lys  
 290 295 300  
 Thr Ser Gly Ser Ile Glu Pro Leu Asp Val Met Glu Ser Lys Ile Lys  
 305 310 315 320  
 Gln His Leu Phe Ala Leu Glu Ala Glu Ser Val Glu Lys Gln Tyr Lys  
 325 330 335  
 Asp Arg Leu Arg Lys Arg Tyr Gly Tyr Asp Ala Ser Met Ile Ala Lys  
 340 345 350  
 Leu Leu Ser Glu Glu Ala Pro Pro Leu Phe Ser Leu Leu  
 355 360 365

&lt;210&gt;1134

&lt;211&gt;277

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1134

Val Thr Arg Ser Ser Pro Ala Gln Leu Ser Arg Phe Leu Ser Glu Ile  
 1 5 10 15  
 Gln Asn Lys Pro Lys Lys Ser Leu Ser Gln Asn Phe Leu Val Asp Gln  
 20 25 30  
 Asn Ile Val Lys Lys Ile Val Ala Thr Ser Glu Val Ile Pro Gln Asp  
 35 40 45  
 Trp Val Leu Glu Ile Gly Pro Gly Phe Gly Ala Leu Thr Glu Glu Leu  
 50 55 60  
 Ile Ala Ala Gly Ala Gln Val Ile Ala Ile Glu Lys Asp Pro Met Phe  
 65 70 75 80  
 Ala Pro Ser Leu Glu Glu Leu Pro Ile Arg Leu Glu Ile Ile Asp Ala  
 85 90 95  
 Cys Lys Tyr Pro Leu Asp Gln Leu Gln Glu Tyr Lys Thr Leu Gly Lys  
 100 105 110  
 Gly Arg Val Val Ala Asn Leu Pro Tyr His Ile Thr Thr Pro Leu Leu  
 115 120 125  
 Thr Lys Leu Phe Leu Glu Ala Pro Asp Phe Trp Lys Thr Val Thr Val  
 130 135 140  
 Met Val Gln Asp Glu Val Ala Arg Arg Ile Val Ala Gln Pro Gly Gly  
 145 150 155 160

Arg Asp Tyr Gly Ser Leu Thr Ile Phe Leu Gln Phe Phe Ala Asp Ile  
                           165                          170                          175  
 His Tyr Ala Phe Lys Val Ser Ala Ser Cys Phe Tyr Pro Lys Pro Gln  
                           180                          185                          190  
 Val Gln Ser Ala Val Ile His Met Lys Val Lys Glu Thr Leu Pro Leu  
                           195                          200                          205  
 Ser Asp Glu Glu Ile Pro Val Phe Phe Thr Leu Thr Arg Thr Ala Phe  
                           210                          215                          220  
 Gln Gln Arg Arg Lys Val Leu Ala Asn Thr Leu Lys Gly Leu Tyr Pro  
                           225                          230                          235                          240  
 Lys Glu Gln Val Glu Gln Ala Leu Lys Glu Leu Gly Leu Leu Leu Asn  
                           245                          250                          255  
 Val Arg Pro Glu Val Leu Ser Leu Asn Asp Tyr Leu Ala Leu Phe His  
                           260                          265                          270  
 Lys Met Gln Ala Gly  
                           275

&lt;210&gt;1135

&lt;211&gt;644

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1135

Met Thr Ser Ser Ser Cys Pro Leu Leu Asp Leu Ile Leu Ser Pro Ala  
   1                          5                          10                          15  
 Asp Leu Lys Lys Leu Ser Ile Ser Gln Leu Pro Gly Leu Ala Glu Glu  
                           20                          25                          30  
 Ile Arg Tyr Arg Ile Ile Ser Val Leu Ser Gln Thr Gly Gly His Leu  
                           35                          40                          45  
 Ser Ser Asn Leu Gly Ile Val Glu Leu Thr Ile Ala Leu His Tyr Val  
                           50                          55                          60  
 Phe Ser Ser Pro Lys Asp Lys Phe Ile Phe Asp Val Gly His Gln Thr  
                           65                          70                          75                          80  
 Tyr Pro His Lys Leu Leu Thr Gly Arg Asn Asn Glu Gly Phe Asp His  
                           85                          90                          95  
 Ile Arg Asn Asp Asn Gly Leu Ser Gly Phe Thr Asn Pro Thr Glu Ser  
                           100                          105                          110  
 Asp His Asp Leu Phe Phe Ser Gly His Ala Gly Thr Ala Leu Ser Leu  
                           115                          120                          125  
 Ala Leu Gly Met Ala Gln Thr Thr Pro Leu Glu Ser Arg Thr His Val  
                           130                          135                          140  
 Ile Pro Ile Leu Gly Asp Ala Ala Phe Ser Cys Gly Leu Thr Leu Glu  
                           145                          150                          155                          160  
 Ala Leu Asn Asn Ile Ser Thr Asp Leu Ser Lys Phe Val Val Ile Leu  
                           165                          170                          175  
 Asn Asp Asn Asn Met Ser Ile Ser Lys Asn Val Gly Ala Met Ser Arg  
                           180                          185                          190  
 Ile Phe Ser Arg Trp Leu His His Pro Ala Thr Asn Lys Leu Thr Lys  
                           195                          200                          205  
 Gln Val Glu Lys Trp Leu Ala Lys Ile Pro Arg Tyr Gly Asp Ser Leu  
                           210                          215                          220  
 Ala Lys His Ser Arg Arg Leu Ser Gln Cys Val Lys Asn Leu Phe Cys  
                           225                          230                          235                          240  
 Pro Thr Pro Leu Phe Glu Gln Phe Gly Leu Ala Tyr Val Gly Pro Ile  
                           245                          250                          255  
 Asp Gly His Asn Val Lys Lys Leu Ile Pro Ile Leu Gln Ser Val Arg  
                           260                          265                          270  
 Asn Leu Pro Phe Pro Ile Leu Val His Val Cys Thr Thr Lys Gly Lys  
                           275                          280                          285  
 Gly Leu Asp Gln Ala Gln Asn Asn Pro Ala Lys Tyr His Gly Val Arg  
                           290                          295                          300  
 Ala Asn Phe Asn Lys Arg Glu Ser Ala Lys His Leu Pro Ala Ile Lys  
                           305                          310                          315                          320  
 Pro Lys Pro Ser Phe Pro Asp Ile Phe Gly Gln Thr Leu Cys Glu Leu  
                           325                          330                          335  
 Gly Glu Val Ser Ser Arg Leu His Val Val Thr Pro Ala Met Ser Ile

340 345 350  
 Gly Ser Arg Leu Glu Gly Phe Lys Gln Lys Phe Pro Glu Arg Phe Phe  
 355 360 365  
 Asp Val Gly Ile Ala Glu Gly His Ala Val Thr Phe Ser Ala Gly Ile  
 370 375 380  
 Ala Lys Ala Gly Asn Pro Val Ile Cys Ser Ile Tyr Ser Thr Phe Leu  
 385 390 395 400  
 His Arg Ala Leu Asp Asn Val Phe His Asp Val Cys Met Gln Asp Leu  
 405 410 415  
 Pro Val Ile Phe Ala Ile Asp Arg Ala Gly Leu Ala Tyr Gly Asp Gly  
 420 425 430  
 Arg Ser His His Gly Ile Tyr Asp Met Ser Phe Leu Arg Ala Met Pro  
 435 440 445  
 Gln Met Ile Ile Cys Gln Pro Arg Ser Gln Val Val Phe Gln Gln Leu  
 450 455 460  
 Leu Tyr Ser Ser Leu His Trp Ser Ser Pro Ser Ala Ile Arg Tyr Pro  
 465 470 475 480  
 Asn Ile Pro Ala Pro His Gly Asp Pro Leu Thr Gly Asp Pro Asn Phe  
 485 490 495  
 Leu Arg Ser Pro Gly Asn Ala Glu Thr Leu Ser Gln Gly Glu Asp Val  
 500 505 510  
 Leu Ile Ile Ala Leu Gly Thr Leu Cys Phe Thr Ala Leu Ser Ile Lys  
 515 520 525  
 His Gln Leu Leu Ala Tyr Gly Ile Ser Ala Thr Val Val Asp Pro Ile  
 530 535 540  
 Phe Ile Lys Pro Phe Asp Asn Asp Leu Phe Ser Leu Leu Leu Met Ser  
 545 550 555 560  
 His Ser Lys Val Ile Thr Ile Glu Glu His Ser Ile Arg Gly Gly Leu  
 565 570 575  
 Ala Ser Glu Phe Asn Asn Phe Val Ala Thr Phe Asn Phe Lys Val Asp  
 580 585 590  
 Ile Leu Asn Phe Ala Ile Pro Asp Thr Phe Leu Ser His Gly Ser Lys  
 595 600 605  
 Glu Ala Leu Thr Lys Ser Ile Gly Leu Asp Glu Ser Ser Met Thr Asn  
 610 615 620  
 Arg Ile Leu Thr His Phe Asn Phe Arg Ser Lys Lys Gln Thr Val Gly  
 625 630 635 640  
 Asp Val Arg Val

&lt;210&gt;1136

&lt;211&gt;127

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1136

Ala Ser Pro Ala Arg Ser Ile Ala Lys Ile Thr Gly Arg Ser Cys Met  
 1 5 10 15  
 Gln Thr Ser Trp Lys Thr Leu Ser Arg Ala Arg Cys Lys Asn Val Glu  
 20 25 30  
 Tyr Ile Glu Gln Ile Thr Gly Leu Pro Ala Phe Ala Met Pro Ala Leu  
 35 40 45  
 Lys Val Thr Ala Trp Pro Ser Ala Ile Pro Thr Ser Lys Lys Arg Ser  
 50 55 60  
 Gly Asn Phe Cys Leu Lys Pro Ser Lys Arg Asp Pro Ile Asp Ile Ala  
 65 70 75 80  
 Gly Val Thr Thr Trp Arg Arg Glu Glu Thr Ser Pro Ser Ser His Ser  
 85 90 95  
 Val Trp Pro Asn Ile Ser Gly Lys Glu Gly Leu Gly Leu Ile Ala Gly  
 100 105 110  
 Arg Cys Phe Ala Asp Ser Arg Leu Leu Lys Phe Ala Leu Thr Pro  
 115 120 125

&lt;210&gt;1137

&lt;211&gt;554

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1137

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Met Ser Ser Pro Pro Gln Ala Val Ala Ser Leu Thr Glu Arg Ile Lys
  1           5           10           15
Thr Leu Leu Glu Ser Asn Phe Cys Gln Ile Ile Val Lys Gly Glu Leu
          20           25           30
Ser Asn Val Ser Leu Gln Pro Ser Gly His Leu Tyr Phe Gly Ile Lys
          35           40           45
Asp Ser Gln Ala Phe Leu Asn Gly Ala Phe Phe His Phe Lys Ser Lys
          50           55           60
Tyr Tyr Asp Arg Lys Pro Lys Asp Gly Asp Ala Val Ile Ile His Gly
          65           70           75           80
Lys Leu Ala Val Tyr Ala Pro Arg Gly Gln Tyr Gln Ile Val Ala His
          85           90           95
Ala Leu Val Tyr Ala Gly Glu Gly Asp Leu Leu Gln Lys Phe Glu Glu
          100          105          110
Thr Lys Arg Arg Leu Thr Ala Glu Gly Tyr Phe Ala Thr Glu Lys Lys
          115          120          125
Lys Pro Leu Pro Phe Ala Pro Gln Cys Ile Gly Val Ile Thr Ser Pro
          130          135          140
Thr Gly Ala Val Ile Gln Asp Ile Leu Arg Val Leu Ser Arg Arg Ala
          145          150          155          160
Arg Asn Tyr Lys Ile Leu Val Tyr Pro Val Thr Val Gln Gly Asn Ser
          165          170          175
Ala Ala His Glu Ile Ser Lys Ala Ile Glu Val Met Asn Ala Glu Asn
          180          185          190
Leu Ala Asp Val Leu Ile Ile Ala Arg Gly Gly Gly Ser Ile Glu Asp
          195          200          205
Leu Trp Ala Phe Asn Glu Glu Ile Leu Val Lys Ala Ile His Ala Ser
          210          215          220
Thr Ile Pro Ile Val Ser Ala Val Gly His Glu Thr Asp Tyr Thr Leu
          225          230          235          240
Cys Asp Phe Ala Ser Asp Val Arg Ala Pro Thr Pro Ser Ala Ala Ala
          245          250          255
Glu Ile Val Cys Lys Ser Ser Glu Glu Gln Val Gln Val Phe Glu Gly
          260          265          270
Tyr Leu Arg His Leu Leu Ser His Ser Arg Gln Leu Leu Thr Ser Lys
          275          280          285
Lys Gln Gln Leu Leu Pro Trp Arg Arg Phe Leu Asp Arg Ala Glu Phe
          290          295          300
Tyr Thr Thr Ala Gln Gln Gln Leu Asp Ser Ile Glu Ile Ala Ile Gln
          305          310          315          320
Lys Gly Val Gln Gly Lys Ile His Glu Ser Lys Gln Arg Tyr Asp Asn
          325          330          335
Ile Ser Arg Trp Leu Gln Gly Asp Leu Val Ser Arg Met Thr Cys Arg
          340          345          350
Leu Gln Ser Leu Lys Lys Met Leu Ser Gln Ala Leu Ser His Lys Ala
          355          360          365
Leu Ser Leu Gln Val Arg Cys His Gln Leu Lys Lys Ser Leu Thr Tyr
          370          375          380
Pro Arg Gln Ile Gln Gln Ala Ser Gln Lys Leu Ser Pro Trp Arg Gln
          385          390          395          400
Gln Leu Asp Thr Leu Ile Ser Arg Arg Leu His Tyr Gln Lys Glu Glu
          405          410          415
Tyr Phe His Lys His Thr Arg Leu Lys His Ala His Asn Val Leu Glu
          420          425          430
Gln Gln Leu Arg Ser His Val Gln Lys Leu Glu Leu Leu Gly Arg Arg
          435          440          445
Leu Ser Arg Gly Cys Glu Leu Asn Leu Gln Asn Gln Lys Ile Ala Tyr
          450          455          460
Ala Asn Val Lys Glu Thr Leu Ala Thr Ile Leu Glu Arg Arg Tyr Glu
          465          470          475          480
Asn Ser Val Ala Arg Tyr Ser Ala Leu Lys Glu Gln Leu His Ser Leu
          485          490          495
Asn Pro Lys Asn Val Leu Lys Arg Gly Tyr Ala Met Leu Phe Asp Phe

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500 505 510  
 Asn Glu Asn Ser Ala Met Ile Ser Val Asp Ser Leu Gln Glu Asn Ala  
 515 520 525  
 Arg Val Arg Ile Gln Leu Gln Asp Gly Glu Ala Ile Leu Thr Val Thr  
 530 535 540  
 Asn Ile Glu Ile Cys Lys Leu Ile Lys Gly  
 545 550  
 <210>1138  
 <211>184  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1138  
 Met Thr Tyr Ala Gln Val Glu Val Leu Met Ala Thr Pro Asp Ile Ser  
 1 5 10 15  
 Lys Tyr His Gly Leu Arg Asp Arg Cys Leu Met Glu Leu Phe Tyr Ser  
 20 25 30  
 Ser Gly Leu Arg Ile Ser Glu Ile Val Ala Val Asn Lys Gln Asp Phe  
 35 40 45  
 Asp Leu Ser Thr His Leu Ile Arg Ile Arg Gly Lys Gly Lys Lys Glu  
 50 55 60  
 Arg Ile Ile Pro Val Thr Ser Asn Ala Ile Gln Trp Ile Gln Ile Tyr  
 65 70 75 80  
 Leu Asn His Pro Asp Arg Lys Arg Leu Glu Lys Asp Pro Gln Ala Ile  
 85 90 95  
 Phe Leu Asn Arg Phe Gly Arg Arg Ile Ser Thr Arg Ser Ile Asp Arg  
 100 105 110  
 Ser Phe Gln Glu Tyr Leu Arg Arg Ser Gly Leu Ser Gly His Ile Thr  
 115 120 125  
 Pro His Thr Ile Arg His Thr Ile Ala Thr His Trp Leu Glu Ser Gly  
 130 135 140  
 Met Asp Leu Lys Thr Ile Gln Ala Leu Leu Gly His Ser Ser Leu Glu  
 145 150 155 160  
 Thr Thr Thr Val Tyr Thr Gln Val Ser Val Lys Leu Lys Lys Gln Thr  
 165 170 175  
 His Gln Glu Ala His Pro His Ala  
 180  
 <210>1139  
 <211>288  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1139  
 Met Ser His Leu Ile Pro Ser Leu Arg Asn Ser Val Thr Ser Tyr Phe  
 1 5 10 15  
 His Lys Pro Gln Pro Ile Lys Gln Ala Ala Pro Ser Lys Ser Ile Arg  
 20 25 30  
 Asp Ile Cys Asn Ile Ala Tyr Leu Ile Ile Ile Cys Val Leu Val Val  
 35 40 45  
 Val Val Leu Val Gly Ala Met Leu Cys Met Phe Ile Pro Ser Val Gly  
 50 55 60  
 Ile Pro Leu Cys Leu Ser Ser Leu Ala Leu Leu Val Leu Leu Ser Ile  
 65 70 75 80  
 Phe Asn Pro Cys Leu Ile Asn Trp Ile Ser Thr Lys Lys Thr Lys Glu  
 85 90 95  
 Ile Ala Pro Lys Asp Ala Ser Glu Ser Gln Pro Thr Lys Ser Ala Ser  
 100 105 110  
 Arg Lys Gly Ser Pro Gln Leu Ser Pro His His Asp His Glu Pro Lys  
 115 120 125  
 Asn Phe Ile Arg Thr Gln Leu Glu Lys Gly Val Asn Tyr Val Thr Asn  
 130 135 140  
 Lys Phe Lys Ser Gly Glu Glu Ser Pro His Ile Ser Asp Glu His His  
 145 150 155 160  
 Ser Pro Arg Gln Ser Lys Arg Ser Ser Glu Ile Glu Ser Ser Asp Glu  
 165 170 175  
 Ser Ser Pro Glu Leu His Arg Lys Ala Lys Gly Lys Ala Pro His Thr



180 185 190  
 Ala Thr Thr Lys Gly Ser Lys Thr Ser Thr Thr Glu Ser Ser Lys Lys  
 195 200 205  
 Lys Lys Lys Thr Lys His Ser Leu His Arg Thr Thr Ser Ser Ile His  
 210 215 220  
 Lys Arg Ser Ala Pro Lys Pro Met Val Pro Ser Lys Lys Arg Lys Pro  
 225 230 235 240  
 Val Leu Leu Lys Lys Thr Val Pro Leu Pro Ile Glu Asp Leu Glu His  
 245 250 255  
 Gln Ser Ser Gly Asn Glu Ser Ser Asp Ser Ser Ser Pro Pro Pro Val  
 260 265 270  
 Gln Arg Lys Ala Ile Leu Pro Trp Phe Cys Lys Gln Pro Thr Asp Pro  
 275 280 285

&lt;210&gt;1140

&lt;211&gt;153

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1140

Met Leu Arg Arg Arg Ile Trp Lys Lys Thr Leu Thr Pro Asp Gln Glu  
 1 5 10 15  
 Asn Leu Ser Leu Pro Leu Pro Ser Pro Thr Thr Leu Lys Lys Ile His  
 20 25 30  
 Ala Leu His Ile Leu Val Arg Ser Gly Lys Thr Tyr Asn Glu Leu Ile  
 35 40 45  
 Gln Glu Gly Phe Ser Phe Thr Lys Ile Thr Asp Leu Gly Gln Ala Pro  
 50 55 60  
 Ser Pro Lys Gln Asp Ile Gly Phe Ser Tyr Asn Ser Leu Leu Pro Asn  
 65 70 75 80  
 Phe Tyr Phe His Ser Leu Val Ser Val Pro Asn Ile Ser Gly Glu Glu  
 85 90 95  
 Arg Ala Leu Asn Tyr His Lys Glu Gln Glu Glu Met Ala Val Lys  
 100 105 110  
 Leu Lys Thr Met Gln Ala Cys Ser Phe Val Phe Arg Ser Leu His Leu  
 115 120 125  
 Pro Ser Met Gln Thr Lys Asp Lys Lys Ala Gly Phe Gly Leu Leu Thr  
 130 135 140  
 Phe Phe Pro Trp Lys Ile Tyr Pro Leu  
 145 150

&lt;210&gt;1141

&lt;211&gt;136

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1141

Leu Ala Met Ala Lys Asn Val Pro Leu Leu Gly Tyr Ser Ser Leu Glu  
 1 5 10 15  
 Gly Tyr Leu Leu Ser Lys Asp Glu Lys Lys Ala Leu Met Leu Pro Leu  
 20 25 30  
 Gly Lys Arg Gly Gly Val Leu Thr Leu Ser Ser Glu Ile Pro Glu Glu  
 35 40 45  
 Gly Leu Asn Glu Lys Arg Arg Gly Val Gly Pro Gly Ala Leu Leu Ser  
 50 55 60  
 Tyr Glu Glu Ala Ser Asp Tyr Cys Val Ala His Gly Tyr Tyr His Val  
 65 70 75 80  
 Ile Ser Pro Asn Pro Gln Leu Phe Ala Ser Ser Phe Ser Asp Lys Ile  
 85 90 95  
 Thr Val Glu Glu Val Ala Pro Ser Val Glu Gln Ile Arg Arg His Val  
 100 105 110  
 Ile Ser Gln Phe Met Phe Val Glu Tyr Asp Lys Gln Leu Ser Pro Asp  
 115 120 125  
 Tyr Arg Ser Tyr Ser Cys Ile Phe  
 130 135

&lt;210&gt;1142

&lt;211&gt;82

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1142

Met Ile Glu Phe Pro Ser Ala Val Trp Met Ile Glu Glu Ile Leu Pro  
 1 5 10 15  
 Glu Cys Asp Phe Leu Ser Ile Gly Thr Asn Asp Leu Val Gln Tyr Thr  
 20 25 30  
 Leu Gly Ile Ser Arg Glu Ser Ala Leu Pro Lys His Leu Asn Val Thr  
 35 40 45  
 Leu Pro Pro Ala Val Ile Arg Met Ile His His Val Leu Gln Ala Ala  
 50 55 60  
 Asn Lys Ile Arg Phe Leu Leu Ala Phe Val Glu Arg Pro Gln Gly Ser  
 65 70 75 80  
 Ser Val

&lt;210&gt;1143

&lt;211&gt;108

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1143

Leu Phe Asp Ala Leu His Ile Ser Leu His Arg Asn Ile Pro Arg Met  
 1 5 10 15  
 Gly Asn His Glu Thr Tyr Ile His Pro Gly Val Leu Pro Ser Ser His  
 20 25 30  
 Ala Gln Asp Val Ser Arg Ser Thr Val Tyr Pro Ser Arg Ser Phe Ile  
 35 40 45  
 Met Arg Arg Met Leu Met Gly Trp Asn Phe Asn Arg Val Pro Ser Lys  
 50 55 60  
 Ser Ser Glu Gln Leu Met Asp Gly His Arg Ile Pro Leu Ile Phe Phe  
 65 70 75 80  
 Gly Lys His His Pro Thr Ile Ser Ile Leu Asn Val Asn Arg Phe Ser  
 85 90 95  
 Trp Leu Ser Ile Phe Tyr Asn Gly Glu Arg Gly Phe  
 100 105

&lt;210&gt;1144

&lt;211&gt;141

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1144

Met Ala Thr Lys Thr Lys Thr Gln Trp Thr Cys Asn Gln Cys Gly Ala  
 1 5 10 15  
 Thr Ala Pro Lys Trp Leu Gly Gln Cys Pro Gly Cys His Asn Trp Asn  
 20 25 30  
 Ser Leu Val Glu Glu Tyr Val Pro Gln Ala Arg Ser Gly Thr Ser Ser  
 35 40 45  
 Arg Ser Ser Thr Ser Ala Ile Ala Leu Ser Ser Ile Glu Leu Glu Asn  
 50 55 60  
 Glu Ser Arg Ile Phe Ile Asp His Ala Gly Trp Asp Arg Ile Leu Gly  
 65 70 75 80  
 Gly Gly Val Val Arg Gly Ser Leu Thr Leu Leu Gly Gly Asp Pro Gly  
 85 90 95  
 Ile Gly Lys Ser Thr Leu Leu Leu Gln Thr Ala Glu Arg Leu Ala Ser  
 100 105 110  
 Gln Lys Tyr Lys Val Leu Tyr Val Cys Gly Glu Glu Ser Val Thr Gln  
 115 120 125  
 Thr Ser Leu Arg Ala Lys Arg Ser Ile Ser His His Leu  
 130 135 140

&lt;210&gt;1145

&lt;211&gt;77

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1145

Met Thr Lys Ile Gln Cys Ser Ala Gln Tyr Tyr Arg Ser Arg Pro Ala  
 1 5 10 15  
 Glu Arg Ala Gln Thr Pro Pro Gln Pro Phe Leu Ala Arg Asp Arg Ala

20 25 30  
 Asp Phe Trp Glu Arg His Pro Arg Phe Ser Ala Cys Cys Arg Val Leu  
 35 40 45  
 Leu Leu Val Ala Trp Val Val Leu Ala Leu Leu Phe Leu Phe Val Met  
 50 55 60  
 Leu Leu Pro Leu Ala Ala Gly Ser Tyr Leu Leu Ala Phe  
 65 70 75

&lt;210&gt;1146

&lt;211&gt;121

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1146

Leu Thr Tyr Thr Arg Val Asn Asp Gly His Leu Ala Pro Phe Arg Ala  
 1 5 10 15  
 Gly Ala Lys Trp Ile Leu Ile His Tyr Val Arg Leu Arg Arg Gln His  
 20 25 30  
 Asn Gln Asn Asp Phe Phe Thr Pro Gly His Ser Cys Tyr Tyr Ala Arg  
 35 40 45  
 Leu Ala Phe Asn Gln Thr Gln Arg Leu Tyr His Gln Leu Phe Asn Val  
 50 55 60  
 Glu Lys Leu Arg Ser Ile Tyr Ala Asn Met Asp Lys Asp Pro Leu Cys  
 65 70 75 80  
 His Pro Trp Ala Xaa Ile Pro Ile Tyr Asp Leu Leu Lys Thr Glu Asp  
 85 90 95  
 His Gly Asp Gly Phe Leu Glu Gln Gln Glu Asp Arg Glu Tyr Pro Ser  
 100 105 110  
 Arg Ala Ala Gln Asp Gln Phe Trp Gly  
 115 120

&lt;210&gt;1147

&lt;211&gt;170

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1147

Val Ser Ala Glu Phe Lys Leu Met Leu Asp Leu Arg Gln Tyr Met Gly  
 1 5 10 15  
 Ser Val Met Gln Arg Leu Gly Leu Ser Asn Leu Phe His Cys Leu Leu  
 20 25 30  
 Leu Phe Leu Arg Tyr Tyr Tyr Ser Lys Leu Val Phe Gly Leu Thr Val  
 35 40 45  
 Leu Leu Ala Ala Ile Ser Val Ile Cys Leu Leu Gly Cys Ser Glu Pro  
 50 55 60  
 Ser Leu Ser Ser Phe Thr Glu Tyr Val Gly Pro Glu Tyr Ser Ala Ala  
 65 70 75 80  
 Ala Gln Leu Ser Ile Glu Gln Ser Cys His Asp Glu Val Tyr Gly Gln  
 85 90 95  
 Gln Val Val Val Thr Trp Ser Leu Pro Ser Arg Met Arg Lys Cys Leu  
 100 105 110  
 Pro Val Thr Leu Tyr Leu Trp Val Tyr Tyr Gly Asn Gly Lys Val Glu  
 115 120 125  
 Lys Leu Thr Tyr Glu Val Asn Gln Ser Ala Gly Tyr Arg Val Tyr Cys  
 130 135 140  
 Leu Lys Gly Leu Glu Tyr Lys Glu Leu Gln Gly Ile Ile Ser Tyr Pro  
 145 150 155 160  
 Leu Arg Tyr Val Ala Gly Ile Lys Arg Leu  
 165 170

&lt;210&gt;1148

&lt;211&gt;101

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1148

Met Val Ser Pro Leu Ser Leu Phe His Lys Met Leu Leu Glu Asn Trp  
 1 5 10 15  
 Thr Pro Val Glu Glu Pro Phe Pro Trp Pro Pro Ala Glu Lys Asn Gln  
 20 25 30

Lys Ile Phe Ala Trp Ala Leu Asn Gln Ser Lys Leu Ile Phe Val Ser  
                   35                  40                  45  
 Thr Ser Gly Asn Ile Ala Gln Pro Arg Leu Val Thr Asp Ser Met Ser  
           50                  55                  60  
 Met Met Ile Val Asn Ala Ala Asn Arg Thr Met Ser Arg Asp Gly Ala  
       65                  70                  75                  80  
 Gly Thr Asn Gln Val Leu Ser Ala Ala Val Ser Val Asp Ser Trp Gly  
                   85                  90                  95  
 Cys Arg Asn Asp Leu  
                   100

&lt;210&gt;1149

&lt;211&gt;119

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1149

Val Ala Leu Lys Ile Arg Leu Arg Gln Gln Gly Arg Arg Asn His Val  
   1                  5                  10                  15  
 Val Tyr Arg Leu Val Leu Ala Asp Val Glu Ser Pro Arg Asp Gly Lys  
           20                  25                  30  
 Tyr Ile Glu Leu Leu Gly Trp Tyr Asp Pro His Ser Ser Ile Asn Tyr  
           35                  40                  45  
 Gln Leu Lys Ser Glu Arg Ile Phe Tyr Trp Leu Glu Arg Gly Ala Gln  
       50                  55                  60  
 Leu Ser Ser Lys Ala Glu Ala Leu Val Lys Gln Gly Ala Pro Gly Val  
       65                  70                  75                  80  
 Tyr Ser Ala Leu Leu Ser Lys Gln Glu Ala Arg Lys Leu Val Val Arg  
                   85                  90                  95  
 Lys Lys Arg Arg Ala Tyr Arg Gln Arg Arg Ser Thr Gln Arg Glu Glu  
                   100                  105                  110  
 Ala Ala Lys Asp Ala Thr Lys  
                   115

&lt;210&gt;1150

&lt;211&gt;170

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1150

Met Ser Glu Val Lys Pro Leu Phe Leu Lys Asn Asp Ser Phe Asp Leu  
   1                  5                  10                  15  
 Ala Thr Gln Arg Phe Gln Asn Leu Ile Asn Met Leu Gln Glu Gln Ala  
           20                  25                  30  
 Glu Ile Tyr Asn Glu Tyr Glu Glu Lys Asn Ala Arg Val Gln Asn Glu  
           35                  40                  45  
 Ile Lys Glu Gln Lys Asp Phe Val Lys Arg Cys Ile Glu Asp Phe Glu  
       50                  55                  60  
 Ala Arg Gly Leu Gly Val Leu Lys Glu Glu Leu Ala Ser Leu Thr Arg  
       65                  70                  75                  80  
 Asp Phe His Asp Lys Ala Lys Ala Glu Thr Ser Met Leu Ile Glu Cys  
                   85                  90                  95  
 Pro Cys Ile Gly Phe Tyr Tyr Ser Ile His Gln Glu Glu Gln Arg Gln  
                   100                  105                  110  
 Arg Gln Glu Arg Leu Gln Lys Met Ala Glu Arg Tyr Arg Asp Cys Lys  
           115                  120                  125  
 Gln Val Leu Glu Ala Val Gln Val Glu Gln Lys Asp Met Ile Ser Ser  
       130                  135                  140  
 Arg Val Val Val Asp Asp Ser Tyr Phe Glu Glu Glu Lys Glu Glu Gln  
       145                  150                  155                  160  
 Lys Val Asp Asn Arg Lys Lys Glu Gln Asp  
                   165                  170

&lt;210&gt;1151

&lt;211&gt;90

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1151

Leu Val Phe Ser Tyr Tyr Cys Met Gly Leu Phe Phe Phe Ser Gly Ala

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      1           5           10           15
Ile Ser Ser Cys Gly Leu Leu Val Ser Leu Gly Val Gly Leu Gly Leu
      20           25           30
Ser Val Leu Gly Val Leu Leu Leu Leu Leu Ala Gly Leu Leu Leu Phe
      35           40           45
Lys Ile Gln Ser Met Leu Arg Glu Val Pro Lys Ala Pro Asp Leu Leu
      50           55           60
Asp Leu Glu Asp Ala Ser Glu Arg Leu Arg Val Lys Ala Ser Arg Ser
      65           70           75           80
Leu Ala Ser Leu Pro Lys Lys Ser Val Ser
      85           90

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&lt;210&gt;1152

&lt;211&gt;94

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1152

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Leu Leu Leu Cys Ser Ala Met Gly Ile Phe Ser Ser Ala Lys Ala Leu
  1           5           10           15
Ile Ala Trp Asn Lys Ala Ser Leu Asn Leu Ser Pro Ala Leu Leu Gly
      20           25           30
Ala Ile Leu Ile Phe Glu Pro Ile Phe Gly Leu Val Leu Thr Tyr Leu
      35           40           45
Tyr Ser Gln Ser Leu Pro Ser Leu Gln Glu Gly Ile Gly Ile Phe Leu
      50           55           60
Met Leu Gly Gly Ser Leu Leu Cys Leu Val Leu Phe Gly Arg Lys Val
      65           70           75           80
Gln Lys Ser Leu Glu Asn Ser Gln Val Ser Ser Ser Asn Glu
      85           90

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&lt;210&gt;1153

&lt;211&gt;248

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1153

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Met Phe Pro Ser Ala Asn Gln Glu Ser Arg Thr Arg Asn Val Pro Leu
  1           5           10           15
Gly Ile Phe His Gly Leu Val Ala Cys Leu Tyr Trp Gly Ile Val Phe
      20           25           30
Val Ile Pro Asn Phe Leu Gly Ser Phe Gly Asp Leu Asp Ile Val Leu
      35           40           45
Thr Arg Tyr Thr Ile Phe Gly Ile Phe Ser Leu Ile Ala Cys Ala Ile
      50           55           60
Lys Asn Pro Ser Val Ile Lys Lys Thr Pro Leu Tyr Ile Trp Arg Lys
      65           70           75           80
Ser Leu Leu Trp Thr Leu Leu Ile Asn Pro Val Tyr Tyr Phe Gly Ile
      85           90           95
Thr Leu Gly Ile Arg Tyr Val Gly Ser Ala Ile Thr Val Val Ile Ala
      100           105           110
Ser Leu Ala Pro Thr Ala Val Leu Tyr His Ser Asn Thr Lys Gln Lys
      115           120           125
Glu Leu Pro Tyr Ser Leu Leu Phe Ala Ile Ser Ser Val Ile Ile Thr
      130           135           140
Gly Val Ile Leu Thr His Leu Ser Ala Leu Asn Leu Pro Thr Ala Ala
      145           150           155           160
Ser Pro Leu Tyr Ser Ile Leu Gly Val Ile Ala Val Ile Leu Ser Thr
      165           170           175
Ser Leu Trp Val Ile Tyr Val Ile Arg Asn Gln Ser Leu Leu Glu Lys
      180           185           190
His Pro Xaa Leu Thr Pro Asp Tyr Leu Glu Leu Pro His Arg Asn Gln
      195           200           205
Arg Phe Asp His Leu Pro Pro Tyr Asp Tyr Tyr Ser Arg Ser Leu Trp
      210           215           220
Asn Tyr Pro Arg Asn Thr Gln Ser Tyr Leu Ala Tyr Thr Gly Ile Arg
      225           230           235           240
Ala Thr Ala Leu Leu Val Ala Met

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245

&lt;210&gt;1154

&lt;211&gt;149

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1154

Met Ala Val Gln Ser Ile Lys Glu Ala Val Thr Ser Ala Ala Thr Ser  
 1 5 10 15  
 Val Gly Cys Val Asn Cys Ser Arg Glu Ala Ile Pro Ala Phe Asn Thr  
 20 25 30  
 Glu Glu Arg Ala Thr Ser Ile Ala Arg Ser Val Ile Ala Ala Ile Ile  
 35 40 45  
 Ala Val Val Ala Ile Ser Leu Leu Gly Leu Gly Leu Val Val Leu Ala  
 50 55 60  
 Gly Cys Cys Pro Leu Gly Met Ala Ala Gly Ala Ile Thr Met Leu Leu  
 65 70 75 80  
 Gly Val Ala Leu Leu Ala Trp Ala Ile Leu Ile Thr Leu Arg Leu Leu  
 85 90 95  
 Asn Ile Pro Lys Ala Glu Ile Pro Ser Pro Gly Asn Asn Gly Glu Pro  
 100 105 110  
 Asn Glu Arg Asn Ser Ala Thr Pro Pro Leu Glu Gly Gly Val Ala Gly  
 115 120 125  
 Glu Ala Gly Arg Gly Gly Gly Ser Pro Leu Thr Gln Leu Asp Leu Asn  
 130 135 140  
 Ser Gly Ala Gly Ser  
 145

&lt;210&gt;1155

&lt;211&gt;124

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1155

Met Gly Asn Ser Cys Phe Trp Arg Gly Gly Leu Leu Arg Tyr Pro Cys  
 1 5 10 15  
 Gly Glu Glu Ile Glu Lys Ser Arg Ala Asn Phe Phe Thr Ala Asp Thr  
 20 25 30  
 Thr Thr Val Met Ser Tyr Pro Pro Asn Pro Tyr Gly Leu Tyr Asp Met  
 35 40 45  
 Ala Gly Asn Val Tyr Glu Trp Cys Gln Asp Trp Tyr Gly Tyr Asp Phe  
 50 55 60  
 Tyr Glu Ile Ser Ala Gln Glu Pro Glu Ser Pro Gln Gly Pro Ala Gln  
 65 70 75 80  
 Gly Val Tyr Arg Val Leu Arg Gly Gly Cys Trp Lys Ser Leu Lys Asp  
 85 90 95  
 Asp Leu Arg Cys Ala His Arg His Arg Asn Asn Pro Gly Ala Val Asn  
 100 105 110  
 Ser Thr Tyr Gly Phe Arg Cys Ala Lys Asn Ile Asn  
 115 120

&lt;210&gt;1156

&lt;211&gt;181

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1156

Lys Leu Lys Leu Leu Lys Ala Ser Phe Ile Lys Leu Leu Leu Thr Leu  
 1 5 10 15  
 Asp Trp Pro Thr Glu Leu Leu Leu Lys Asn Arg Pro Phe Asp Phe Thr  
 20 25 30  
 Gly His Pro Glu Glu Glu Lys Leu Ile Lys Asp Ile Leu Leu Lys Glu  
 35 40 45  
 Glu Gly Asn Lys Tyr Phe Ser Leu Glu Ser Lys Lys Leu Leu Ala Arg  
 50 55 60  
 His Met Met His Asn Ile Val Val Leu Ser Glu Glu Pro Gly Arg Ser  
 65 70 75 80  
 Ala Phe Leu Gly Arg Thr Ala Phe Phe Pro Asn Lys Tyr Pro Ile Ala  
 85 90 95

1140

Gln Gly Gly Val Gly Ile Pro Ser Thr Ile Gly Asn Leu Phe Thr Ile  
                           100                          105                          110  
 Trp Tyr Cys Phe Tyr Phe Tyr Arg Ala Ala Thr Pro Gln Ser Asp His  
                           115                          120                          125  
 Pro Asp Gly Cys Gly Phe Ile Leu Leu Glu Arg Leu Lys Glu Leu Gly  
                           130                          135                          140  
 Ala Gly Phe Phe Tyr Cys Asp Leu Arg Glu Ser Asn Thr Thr Gly Phe  
 145                          150                          155                          160  
 Thr Leu Phe Phe Glu Gly Ser Asn Lys Gly Val Leu Lys Asn His Leu  
                           165                          170                          175  
 Phe Ile Arg Asp Glu  
                           180

&lt;210&gt;1157

&lt;211&gt;131

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1157

Met Asn Ile Tyr Gln Phe Ser Pro Gly Ala Ser Pro Asn Trp Gln Ala  
   1                          5                          10                          15  
 Ser Leu Met Ala Gln Leu Asn Ser Tyr Phe Cys Leu Gly Gly Glu Thr  
                           20                          25                          30  
 Val Thr Arg Ile Ile Ser Leu Arg Pro Ser Gly Leu Ile Leu Ala Lys  
                           35                          40                          45  
 Lys Glu Lys Ala Val Val Ser Thr Ala Glu Lys Ile Leu Lys Ile Leu  
                           50                          55                          60  
 Ser Phe Ile Leu Phe Pro Leu Val Leu Ile Ala Leu Ala Ile Arg Tyr  
 65                          70                          75                          80  
 Leu Leu Tyr Asn Lys Phe Asn Lys Asp Leu Asp Arg Ala Val Phe Phe  
                           85                          90                          95  
 Ile Pro Thr Glu Ile Thr Lys Ala Glu Glu Leu Ile Ile Ala Lys Asn  
                           100                          105                          110  
 Ser Cys Ala Ser Glu Arg Ser Gly Ser Asn Cys Phe Ser Ala Leu Leu  
                           115                          120                          125  
 Phe Ser Ser  
                           130

&lt;210&gt;1158

&lt;211&gt;111

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1158

Met Leu Gln His Leu Phe Ile Asp Gly Ile Thr Gln Glu Asn Pro Glu  
   1                          5                          10                          15  
 Ala Leu Pro Asn Asn Thr Ser Gly Arg Leu Thr Leu Phe Pro Ser Val  
                           20                          25                          30  
 Arg Tyr Ile Tyr Ser His Phe Thr Pro Gln Asn Pro Thr Ile Trp Pro  
                           35                          40                          45  
 Gln Val Phe Phe Arg Gln Gly Pro Leu Asp Glu Asp Arg Gly Gly Gly  
                           50                          55                          60  
 Phe Glu Ile Leu Glu Gln Leu Gln Glu Leu Gly Val Arg Phe Pro Ile  
 65                          70                          75                          80  
 Cys Pro Ser Gln Gly Pro Asp Asn Pro Asn Phe Gln Gly Phe Gln Gly  
                           85                          90                          95  
 Ile Arg Ile Tyr Trp Glu Asp Ser Tyr Gln Pro Asn Lys Glu Val  
                           100                          105                          110

&lt;210&gt;1159

&lt;211&gt;111

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1159

Met Ser Glu Ser Ile Asn Arg Ser Ile His Leu Glu Ala Ser Thr Pro  
   1                          5                          10                          15  
 Phe Phe Ile Lys Leu Thr Asn Leu Cys Glu Ser Arg Leu Val Lys Ile  
                           20                          25                          30  
 Thr Ser Leu Val Ile Ser Leu Leu Ala Leu Val Gly Ala Gly Val Thr

```

      35              40              45
Leu Val Val Leu Phe Val Ala Gly Ile Leu Pro Leu Leu Pro Val Leu
      50              55              60
Ile Leu Glu Ile Ile Leu Ile Thr Val Leu Val Leu Leu Phe Cys Leu
      65              70              75              80
Val Leu Glu Pro Tyr Leu Ile Glu Lys Pro Ser Lys Ile Lys Glu Leu
      85              90              95
Pro Lys Val Asp Glu Leu Ser Val Val Glu Thr Asp Ser Thr Leu
      100              105              110

```

&lt;210&gt;1160

&lt;211&gt;75

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1160

```

Leu Ala Phe Asn Glu Ser Val Arg Ile Tyr Arg Lys Leu Phe Asn Thr
      1              5              10              15
Ala Glu Leu Lys Gln Met Tyr Gly Ala Gly Asp Tyr Glu Gln Gln Asn
      20              25              30
Glu Asp Asn Leu Lys Ser Ile Leu Ser Phe Val Gln Ile Leu Asp Glu
      35              40              45
Lys Asp Gly Phe Asp Asp Phe Leu Ala Thr His Lys Asp Thr Thr Phe
      50              55              60
Ile Gly Arg Gly Gly Ala Asp Ile Phe Cys Ser
      65              70              75

```

&lt;210&gt;1161

&lt;211&gt;87

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1161

```

Met Glu Glu Ala Leu Thr Phe Asp Asp Val Leu Leu Ile Pro Gln Tyr
      1              5              10              15
Ser Glu Ile Leu Pro Ser Glu Val Ser Leu Lys Thr Ala Ile Ser Lys
      20              25              30
Thr Leu Ser Leu Asn Ile Pro Ile Leu Ser Ala Ala Met Asp Ser Val
      35              40              45
Thr Glu Thr Ala Met Ala Leu Ala Leu Ala Gln Glu Gly Gly Leu Gly
      50              55              60
Ile Leu His Lys Asn Met Ser Glu Val Glu Gln Ser Ser Ser Val Arg
      65              70              75              80
Lys Ile Lys Glu Ala Tyr Pro
      85

```

&lt;210&gt;1162

&lt;211&gt;91

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1162

```

Met Asp Phe Ser Val Phe Pro Asp Arg Phe Val Glu Ser Thr Ser Pro
      1              5              10              15
Ser Pro Ile Glu Asp Ile Asp Ala Lys Thr Leu Val Ser Asn Cys Cys
      20              25              30
His Tyr Cys Ser Arg Cys Leu Phe Ile Phe Leu Ser Leu Leu Ser Ile
      35              40              45
Ile Ile Cys Phe Ser Val Tyr Gly Thr Ser Gly Glu Thr Ala Ser Leu
      50              55              60
Val Phe Gly Ile Leu Ser Leu Ile Val Leu Val Leu Leu Ile Ile Glu
      65              70              75              80
Cys Arg Asn Arg Glu Cys Cys Arg Arg Ile Ser
      85              90

```

&lt;210&gt;1163

&lt;211&gt;95

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1163

```

Leu Gln Ala Gly Arg Ser Gly Ile Ile Pro Gly Lys Lys Ala Ile Leu

```



```

      1             5             10             15
Leu Asn Val Asn Asp Ala Lys Thr Pro Asn Tyr Ser Cys Ile Phe Glu
      20             25             30
Ser Ile Gly Phe Phe Asn Glu Gln Asp Leu Glu Ala Gln His Asn Gln
      35             40             45
Gln Ala Ala Leu Val Arg Lys Ile Leu Lys Val Val Pro His His Phe
      50             55             60
Leu Lys Gly Leu Ile Ala Lys Leu Pro Arg Ser Leu Lys Lys Asp Arg
      65             70             75             80
Lys Phe Met Ser Ser Leu Ile Phe Thr Lys Leu Ser Tyr Cys Phe
      85             90             95

```

&lt;210&gt;1164

&lt;211&gt;95

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1164

```

Met Met Lys Ile Lys Lys Ala Ile Ser Arg His Ile Asp Arg Tyr Leu
      1             5             10             15
Ser Pro Met Lys Ile Pro Ile Met Ala His Pro Gly Gln Lys Asp Ser
      20             25             30
Pro Ser Thr Leu Ser Phe His Phe Pro Leu Ser Tyr Trp Phe Lys Glu
      35             40             45
Leu Ser Ser His Gly Phe Leu Val Ser Gly Leu Glu Glu Trp Thr Ser
      50             55             60
Ser Lys Thr Ser Thr Gly Lys Arg Ala Lys Ala Glu Asn Leu Cys Arg
      65             70             75             80
Lys Glu Phe Pro Leu Phe Leu Met Ile Ser Cys Ile Lys Ile Lys
      85             90             95

```

&lt;210&gt;1165

&lt;211&gt;238

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1165

```

Met Glu Asn Leu Ser Ser Ala Pro Ser Arg Ser Ile Trp Lys Ser Ile
      1             5             10             15
Ile Gln Asn Lys Met Leu Val Leu Gly Leu Thr Thr Leu Ile Ile Leu
      20             25             30
Met Leu Gly Ala Leu Leu Leu Pro Trp Phe Tyr Gln Asp Tyr Glu Gln
      35             40             45
Thr Ser Leu Lys Asp Ile Leu Val Ser Pro Cys Ser Arg Phe Pro Phe
      50             55             60
Gly Thr Asp Thr Leu Gly Arg Cys Met Phe Ala Arg Thr Leu Arg Gly
      65             70             75             80
Leu Arg Leu Ser Leu Leu Ile Ala Thr Ile Ala Thr Leu Ile Asp Val
      85             90             95
Cys Val Gly Leu Leu Trp Ala Thr Val Ala Ile Ser Gly Gly Lys Lys
      100             105             110
Ile Asp Phe Leu Met Met Arg Thr Thr Glu Ile Leu Phe Ser Leu Pro
      115             120             125
Arg Ile Pro Ile Ile Ile Leu Leu Leu Val Ile Phe His His Gly Leu
      130             135             140
Leu Pro Leu Ile Leu Ala Met Thr Ile Thr Gly Trp Ile Pro Ile Ser
      145             150             155             160
Arg Ile Ile Tyr Gly Gln Phe Leu Leu Leu Lys Asn Lys Pro Phe Val
      165             170             175
Leu Ser Ala Lys Ala Met His Ala Ser Thr Phe His Ile Leu Lys Lys
      180             185             190
His Leu Leu Pro Asn Thr Leu Ala Pro Ile Ile Ser Thr Leu Ile Phe
      195             200             205
Thr Ile Pro Asn Ala Ile Tyr Thr Glu Ala Phe Ile Ser Phe Leu Gly
      210             215             220
Leu Gly Ile Gln Pro Pro Gln Ala Lys Pro Arg His Leu Ser
      225             230             235

```

&lt;210&gt;1166

&lt;211&gt;211

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1166

Met Gly Pro Leu Lys Lys Glu Glu Lys Thr Ile Leu Met Ile Phe Phe  
 1 5 10 15  
 Leu Leu Val Val Leu Trp Thr Phe Gly Asp Leu Leu Gly Ile Ser Ala  
 20 25 30  
 Thr Thr Ala Ala Leu Ile Gly Leu Ser Leu Leu Ile Leu Thr Asn Ile  
 35 40 45  
 Leu Asp Trp Gln Lys Asp Val Ile Ala Asn Thr Thr Ala Trp Glu Thr  
 50 55 60  
 Phe Ile Trp Phe Gly Ala Leu Ile Met Met Ala Ser Phe Leu Asn Gln  
 65 70 75 80  
 Leu Gly Phe Ile Pro Leu Val Gly Asp Ser Ala Ala Ala Leu Val Ser  
 85 90 95  
 Gly Leu Ser Trp Lys Ile Gly Phe Pro Leu Leu Phe Leu Ile Tyr Phe  
 100 105 110  
 Tyr Ser His Tyr Leu Phe Ala Ser Asn Thr Ala His Ile Gly Ala Met  
 115 120 125  
 Tyr Pro Ile Phe Leu Ala Val Ser Ile Ser Leu Gly Thr Asn Pro Ile  
 130 135 140  
 Phe Ala Ala Leu Thr Leu Ala Phe Ala Ser Asn Leu Phe Gly Gly Leu  
 145 150 155 160  
 Thr His Tyr Gly Ser Gly Pro Ala Pro Leu Tyr Phe Gly Ser His Leu  
 165 170 175  
 Val Thr Val Gln Glu Trp Trp Arg Ser Gly Phe Ala Leu Ser Ile Val  
 180 185 190  
 Asn Ile Val Ile Trp Ile Gly Ile Gly Ser Leu Trp Trp Lys Ala Leu  
 195 200 205  
 Gly Leu Ile  
 210

&lt;210&gt;1167

&lt;211&gt;81

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1167

Leu Lys Met Glu Thr Tyr Ser Phe Ser Thr Glu Leu Gln Lys Asn Thr  
 1 5 10 15  
 Ser Leu Tyr Ile Met Glu Lys Leu Asp Ser Tyr Phe Ser Phe Gln Gly  
 20 25 30  
 Lys Arg Thr Arg Val Ile Ala Ile Thr Pro Ala Gly Leu Ala Ile Ala  
 35 40 45  
 Tyr Glu Gln Asn Ile His Leu Ser Met Thr Val Lys Ile Leu Lys Val  
 50 55 60  
 Leu Ser Phe Pro Arg Ser Leu Leu Arg Thr Thr Ser Leu Trp Tyr Arg  
 65 70 75 80  
 Pro

&lt;210&gt;1168

&lt;211&gt;228

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1168

Leu Lys Gly Phe Leu Ser Val Asn Glu Leu Ile Phe Gly Phe Gln Thr  
 1 5 10 15  
 Phe Ser Val Val Val Leu Gly Val Phe Phe Ala Ser Arg Gly Lys Ala  
 20 25 30  
 Trp Leu Thr Gly Trp Leu Ser Leu Leu Ser Ser Ile Met Asn Val Phe  
 35 40 45  
 Val Leu Lys Gln Ile His Leu Trp Gly Phe Glu Val Thr Ser Ala Asp  
 50 55 60  
 Val Tyr Val Ile Gly Leu Leu Thr Cys Leu Asn Tyr Ala Arg Glu His  
 65 70 75 80

Tyr Glu Lys Asn Asp Ile Asn Asp Ala Met Leu Cys Ser Trp Val Ile  
                             85                            90                            95  
 Ser Ile Ala Phe Leu Val Leu Thr Gln Leu His Leu Phe Leu Ile Pro  
                             100                            105                            110  
 Ser Pro Asn Asp Ser Ser Gln Glu His Phe Leu Ala Leu Phe Ser Ser  
                             115                            120                            125  
 Thr Pro Arg Ile Val Val Ala Ser Leu Val Thr Leu Ile Phe Val Gln  
                             130                            135                            140  
 Ile Val Asp Ile Lys Leu Phe Thr Phe Leu Gln Arg Val Phe Ser Lys  
                             145                            150                            155                            160  
 Lys Tyr Phe Ala Met Arg Ser Thr Ile Ser Leu Leu Phe Ser Gln Leu  
                             165                            170                            175  
 Ile Asp Thr Ile Ile Phe Ser Phe Leu Gly Leu Tyr Gly Leu Val Ser  
                             180                            185                            190  
 Asn Leu Cys Asp Val Met Ile Phe Ala Met Leu Val Lys Gly Ile Val  
                             195                            200                            205  
 Ile Thr Leu Ala Ile Pro Thr Leu Thr Val Thr Lys Ala Val Leu Asp  
                             210                            215                            220  
 Arg Arg Ser Ser  
 225

&lt;210&gt;1169

&lt;211&gt;189

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1169

Leu Gly Ile Phe Cys Phe Lys Lys Ile Asn Leu Phe Lys Thr Phe Ile  
                             1                            5                            10                            15  
 Leu Met Asn Asn Asn Val Tyr Leu Phe Cys Phe Leu Ile Phe Leu Ser  
                             20                            25                            30  
 Lys Lys Val Phe Phe Glu Ser Tyr Glu Asp Phe Ala Asn Val Ala Ser  
                             35                            40                            45  
 Ser Trp Pro Lys Ser Leu Arg Ala Leu Val Gln Gly Arg Tyr Phe Val  
                             50                            55                            60  
 Asp Ser Glu Leu Lys Glu Thr Pro Tyr Arg Ile His Asp Phe Lys Lys  
                             65                            70                            75                            80  
 Thr Pro Ile His His Arg Leu Tyr Arg Ser Leu Pro Ile Ile Ser Thr  
                             85                            90                            95  
 Ile Gly Gly Ile Ile Arg Leu Ile Glu Ala His Ser Gly Pro Ile His  
                             100                            105                            110  
 Pro Arg Asp Lys Met Lys Tyr Arg Phe Glu Val Leu Gln Ala Val Ile  
                             115                            120                            125  
 Glu Ile Leu Gly Leu Gly Val Leu Ile Leu Val Phe Asp Ile Ile Gly  
                             130                            135                            140  
 Cys Phe Leu Ala Phe Leu Val Ala Ile Ile Leu Ser Leu Leu Leu Tyr  
                             145                            150                            155                            160  
 Cys Asn Ser Thr Phe Thr Cys Val Gln Asn Leu Ser Phe Thr Glu Arg  
                             165                            170                            175  
 Met Leu Glu Gly Ile Gly Glu Ala Val Asn Phe Leu Ala  
                             180                            185

&lt;210&gt;1170

&lt;211&gt;92

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1170

Val Gly Leu Ser Tyr Trp Asp Ser Gly Phe Val Val Leu Ala Cys Lys  
                             1                            5                            10                            15  
 Val Leu Ala Thr Ala Leu Lys Phe Leu Phe Ser Lys Ala Ser Ser Lys  
                             20                            25                            30  
 Ile Lys Gln Met Lys Trp Arg Glu Lys Ala Arg Asn Leu Ala Ala Lys  
                             35                            40                            45  
 Asp Thr Val Gln Ser Ile Lys Glu Phe Cys Ser Val Asp Leu Thr Ser  
                             50                            55                            60  
 Cys Phe Thr Arg Cys Phe Arg Leu Arg Asn Arg Val Val Glu Glu Gly  
                             65                            70                            75                            80

Ala Ser Glu Asn Gln Thr Val Arg Glu Ile Ile Val

85

90

&lt;210&gt;1171

&lt;211&gt;130

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1171

Met Val Asn Arg Tyr Lys Ser Ser Ala Glu Phe Ser Ala Asp His Tyr

1

5

10

15

Tyr Asp Asp Asn Leu Val Arg Met Gly Tyr Lys Arg Asn Leu Arg Gly

20

25

30

Leu Ala Pro Val Glu Asn Glu Val Cys Leu Phe Glu Glu Asn Asn Leu

35

40

45

Leu Glu Ser Val Met Ala Ser Ile Pro Ile Met Gly Ser Ile Leu Gly

50

55

60

Leu Gly Arg Leu His Ser Val Trp Ser Thr Gln Asp Pro Lys Asp Ser

65

70

75

80

Lys Ile Ser Ile Ile Phe His Thr Ala Leu Gly Ile Leu Glu Thr Leu

85

90

95

Gly Leu Gly Ile Ile Val Leu Leu Ile Lys Ile Thr Ile Thr Ile Leu

100

105

110

Leu Ile Leu Phe Thr Pro Cys Leu Leu Cys Tyr Phe Met Tyr Ser Cys

115

120

125

Cys Leu

130

&lt;210&gt;1172

&lt;211&gt;125

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1172

Met Thr Lys Asn Ala Ile Asn Ser Gln Thr Thr Thr Pro Gln Pro Asn

1

5

10

15

Leu Thr Asp Ala Glu Pro Ile Ala Ser Arg Ala Gln Cys Lys Ser Ile

20

25

30

Ala Val Ile Ile Ser Leu Phe Ala Leu Gly Met Leu Leu Leu Cys Leu

35

40

45

Gly Ile Ile Leu Ile Ser Ile Pro Ile Pro Gly Leu Ala Ala Gln Val

50

55

60

Ala Leu Gly Leu Gly Ile Val Ser Leu Ile Leu Gly Ile Ala Leu Ala

65

70

75

80

Asn Ile Gly Phe Leu Cys Leu Leu Leu Arg Cys Lys Gln Phe Pro Lys

85

90

95

Asn Pro Ile His Cys Pro Leu Lys Ala Leu Asn Ser Leu Pro Arg Glu

100

105

110

Ala Leu Pro Pro His Ser His Gly Lys Leu Glu Asn Phe

115

120

125

&lt;210&gt;1173

&lt;211&gt;141

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1173

Leu Lys Glu Ile Met Met Ile Asn Phe Ile Arg Ser Tyr Ala Leu Tyr

1

5

10

15

Phe Ala Trp Ala Ile Ser Cys Ala Gly Thr Leu Ile Ser Ile Phe Tyr

20

25

30

Ser Tyr Ile Leu Asn Val Glu Pro Cys Ile Leu Cys Tyr Tyr Gln Arg

35

40

45

Ile Cys Leu Phe Pro Leu Thr Val Ile Leu Gly Ile Ser Ala Tyr Arg

50

55

60

Glu Asp Ser Ser Ile Lys Leu Tyr Ile Leu Pro Gln Ala Val Leu Gly

65

70

75

80

Leu Gly Ile Ser Ile Tyr Gln Val Phe Leu Gln Glu Ile Pro Gly Met

85

90

95

Gln Leu Asp Ile Cys Gly Arg Val Ser Cys Ser Thr Lys Ile Phe Leu

100 105 110  
 Phe Ser Tyr Val Thr Ile Pro Met Ala Ser Val Val Ala Phe Gly Ala  
 115 120 125  
 Ile Val Cys Leu Leu Val Leu Thr Lys Asn Tyr Arg Gly  
 130 135 140

&lt;210&gt;1174

&lt;211&gt;146

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1174

Leu Xaa Ile Glu Gln Glu Asn Phe Ser Phe Lys Phe Lys Lys Ser Ala  
 1 5 10 15  
 Leu Ser Phe Thr Tyr Asn Thr Ala Asn Leu Thr Lys Ser Thr Phe Thr  
 20 25 30  
 Phe Ile Leu Leu Leu Leu Arg Lys Lys Asp Gln Gly Leu Arg Phe  
 35 40 45  
 Met Asp Lys Glu Thr Leu Glu Asn Ile Tyr Arg His Phe Arg Tyr Arg  
 50 55 60  
 Phe Leu Lys Leu Asn Ile Leu Pro Ala Phe Leu Gly Leu Leu Leu Leu  
 65 70 75 80  
 Cys Ser Pro Asn Thr Leu Asn Tyr Thr Gln Val Asp Val Ile Phe Ser  
 85 90 95  
 Asp Arg Leu Cys Ser Cys Leu Leu Ile Phe Leu Ala Ile Ala Ser Leu  
 100 105 110  
 Thr Lys Arg Ser Leu Leu Trp Leu Gly Ala Pro Leu Gly Ile Trp Val  
 115 120 125  
 Thr Leu Phe Ala Cys Val Ala Asp Asp Leu Leu Leu Phe Leu Gln Met  
 130 135 140

Ile Leu

145

&lt;210&gt;1175

&lt;211&gt;95

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1175

Leu Leu Val Phe Val Lys Val Asn Ser Ser Met Gly Leu Pro Thr Phe  
 1 5 10 15  
 Pro Xaa Xaa Phe Leu Asn Ile Cys Cys Trp Phe Ile Ile Val Leu Phe  
 20 25 30  
 Ile Leu Ala Phe Ala Glu Ser Leu Arg His Leu Arg Trp Met Asn Leu  
 35 40 45  
 Ile Phe Ser Ala Ala Ile Leu Phe Ser Pro Val Leu Phe His Ile Pro  
 50 55 60  
 Val Glu Ser Pro Met Phe Leu Pro Ile Ile Val Thr Gly Leu Ile Leu  
 65 70 75 80  
 Ile Ile Leu Ser Ile Gly Lys Arg Arg Arg Thr Lys Arg Lys Leu  
 85 90 95

&lt;210&gt;1176

&lt;211&gt;85

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1176

Leu Val Tyr Phe Met Val Phe Ser Pro Ser Ser Glu Ser Val Val Lys  
 1 5 10 15  
 Ala Asn Ser Val Val Arg Ser Asn Phe Cys Tyr Phe Leu Glu Asn Lys  
 20 25 30  
 Phe Val Ser Pro Ser Glu Ser Thr Glu Val Met Phe Ser Glu Ile Met  
 35 40 45  
 Lys Gly Arg Val Pro Asp Ile Glu Ser Leu Phe Asp Arg Pro Thr Asp  
 50 55 60  
 Met Met Met Thr Gly Phe Lys Xaa Arg Arg Ile Trp Gly Ile Cys Ser  
 65 70 75 80  
 Ile Ala Ser Glu Tyr  
 85

&lt;210&gt;1177

&lt;211&gt;114

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1177

Met Leu Tyr Pro Val Ile Ala Val Val Cys Ala Val Val Ser Val Val  
 1 5 10 15  
 Leu Leu Ile Leu Lys Val Leu Phe Leu Leu Ser Phe Pro Phe Lys  
 20 25 30  
 Leu Cys Ser Ala Ser Ser Ala Leu Pro Gly Glu Arg Val Ser Leu Gly  
 35 40 45  
 Ser His Phe Lys Cys Leu Tyr Gly Gly Gly Leu Pro Tyr Leu Leu Ala  
 50 55 60  
 Cys Leu Leu Ile Val Pro Val Ile Gly Thr Ala Ile His Gly Phe Ile  
 65 70 75 80  
 Ile Ser His Arg Thr Ser Glu Asp Ala Arg Leu Ser Ser Ala Ile Val  
 85 90 95  
 Phe Met Gln Ala Pro Ile Leu Gln Leu Ala Gly Met Ser Gly Leu Ile  
 100 105 110

Lys Pro

&lt;210&gt;1178

&lt;211&gt;79

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1178

Leu Phe Phe Tyr Ile Tyr Ser Ile Leu Lys Arg Tyr Ile Val Val Leu  
 1 5 10 15  
 Gly Lys Ile Leu Gly Leu Ile Thr Ile Gln Phe Tyr Gln Asn Leu Gly  
 20 25 30  
 Gly Met Ser Ser Glu Arg Tyr Ser Ala Leu His Ser Arg Lys Ser Leu  
 35 40 45  
 Ser Val Leu Pro His Val Val Arg Lys Val Leu Leu Ser Phe Pro Asp  
 50 55 60  
 Phe Arg Gly Asn Gly Asp Val Asn Leu Arg Asn Ile Arg Ser Asp  
 65 70 75

&lt;210&gt;1179

&lt;211&gt;163

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1179

Leu Lys Ala Lys Ala Tyr Leu Asp Lys Gly Ala Phe Val Pro Ser Asp  
 1 5 10 15  
 Phe Val Trp Glu Ile Leu Lys Glu Lys Leu Gln Ser Gln Ala Cys Ser  
 20 25 30  
 Lys Gly Cys Ile Ile Asp Gly Phe Pro Arg Thr Leu Asp Gln Ala His  
 35 40 45  
 Leu Leu Asp Ser Phe Leu Met Asp Val His Ser Asn Tyr Thr Val Ile  
 50 55 60  
 Phe Leu Glu Ile Ser Glu Asp Glu Ile Leu Lys Arg Val Cys Ser Arg  
 65 70 75 80  
 Phe Leu Cys Pro Ser Cys Ser Arg Ile Tyr Asn Thr Ser Gln Gly His  
 85 90 95  
 Thr Glu Cys Pro Asp Cys His Val Pro Leu Ile Arg Arg Ser Asp Asp  
 100 105 110  
 Thr Pro Glu Ile Ile Lys Glu Arg Leu Thr Lys Tyr Gln Glu Arg Thr  
 115 120 125  
 Ala Pro Val Ile Ala Tyr Tyr Asp Ser Leu Gly Lys Leu Cys Arg Val  
 130 135 140  
 Ser Ser Glu Asn Lys Glu Asp Leu Val Phe Glu Asp Ile Leu Lys Cys  
 145 150 155 160  
 Ile Tyr Lys

&lt;210&gt;1180

&lt;211&gt;128

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1180

```

Met Ser Gln Cys Gln Ser Ser Ser Thr Ser Thr Trp Glu Trp Met Lys
 1           5           10           15
Ser Phe Val Pro Asn Trp Lys Asn Pro Thr Pro Pro Leu Ser Pro Ile
           20           25           30
Pro Ser Glu Asp Glu Phe Ile Leu Ala Tyr Glu Pro Phe Val Leu Pro
           35           40           45
Lys Thr Asp Pro Glu Asn Ala Gln Ala Asn Pro Pro Gly Thr Ser Thr
           50           55           60
Pro Asn Val Glu Asn Gly Ile Asp Asp Leu Asn Pro Leu Leu Gly Gln
65           70           75           80
Pro Asn Glu Gln Asn Asn Ala Asn Asn Pro Gly Thr Ser Gly Ser Asn
           85           90           95
Pro Thr Ser Leu Pro Ala Pro Glu Arg Leu Pro Glu Thr Glu Glu Asn
           100          105          110
Ser Gln Glu Glu Glu Gln Gly Ser Gln Asn Asn Glu Asp Leu Ile Gly
           115          120          125

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&lt;210&gt;1181

&lt;211&gt;94

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1181

```

Leu Lys Ser Met Leu Asp Pro Lys Lys His Ser Thr Leu Gly Ile Glu
 1           5           10           15
Ile Ser Ser Glu Thr Ala Glu Thr Ile Glu Ser Cys Ser Leu Gly Leu
           20           25           30
Ile Ser Ile Asn Leu Leu Leu Ser Gly Leu Cys Leu Arg Ser Ser His
           35           40           45
Asp Arg Ser Gln Ala Val Lys Ile Ile Gln Gln Phe Cys Pro Gln Phe
           50           55           60
Ser Ser Glu Glu Val Gln Asn Phe Val Glu Gln Arg Asn Ile Leu Leu
65           70           75           80
His Phe Tyr Ile Ile Cys Leu Lys Gly Thr Lys Ser Pro Cys
           85           90

```

&lt;210&gt;1182

&lt;211&gt;314

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1182

```

Met Asn Lys Lys His Ala Ser Phe Ser Ser Arg Leu Gly Phe Ile Phe
 1           5           10           15
Ser Met Ile Gly Ile Ala Val Gly Ala Gly Asn Ile Trp Arg Phe Pro
           20           25           30
Arg Val Ala Ala Gln Asn Gly Gly Gly Ala Phe Leu Ile Leu Trp Leu
           35           40           45
Cys Phe Leu Phe Leu Trp Ser Ile Pro Leu Ile Ile Ile Glu Leu Ser
           50           55           60
Ile Gly Lys Leu Thr Lys Lys Ala Pro Ile Gly Ala Leu Ile Lys Thr
65           70           75           80
Ala Gly Lys Lys Phe Ala Trp Ala Gly Gly Phe Ile Thr Leu Val Thr
           85           90           95
Thr Cys Ile Leu Ala Tyr Tyr Ser Thr Ile Val Gly Trp Gly Leu Ser
           100          105          110
Tyr Phe Tyr Tyr Ala Val Ser Gly Lys Ile His Leu Gly Asn Asp Phe
           115          120          125
Ala Lys Leu Trp Thr Ser His Tyr Gln Ser Ser Ile Pro Leu Trp Ala
           130          135          140
His Leu Thr Ser Leu Gly Leu Ala Tyr Leu Val Ile Arg Lys Gly Ile
145          150          155          160
Val His Gly Ile Glu Lys Cys Asn Lys Ile Leu Ile Pro Ala Phe Phe
           165          170          175

```

Leu Cys Thr Ile Ala Leu Leu Leu Arg Ala Val Thr Leu Pro Gly Ala  
 180 185 190  
 Val Gln Gly Ile Lys Gln Leu Phe Ser Cys Asp Lys Ser Cys Phe Ser  
 195 200 205  
 Asn Tyr Lys Val Trp Ile Glu Ala Leu Thr Gln Asn Ala Trp Asp Thr  
 210 215 220  
 Gly Ala Gly Trp Gly Leu Leu Val Tyr Ala Gly Phe Ala Ser Lys  
 225 230 235 240  
 Lys Thr Gly Val Val Ser Asn Gly Ala Leu Thr Ala Ile Cys Asn Asn  
 245 250 255  
 Leu Val Ser Leu Ile Met Gly Asp His Tyr Leu Phe His Met Cys Phe .  
 260 265 270  
 Phe Arg His Phe Arg Asn His Ala Ala Thr Arg Trp Ser Arg Ser Xaa  
 275 280 285  
 Lys His Arg Asp Tyr Leu Tyr Leu Pro Thr Arg Val Ile Tyr Pro Phe  
 290 295 300  
 Ala Trp Arg Asn Leu Ser Asn His Pro Val  
 305 310

&lt;210&gt;1183

&lt;211&gt;132

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1183

Met Arg Ala Glu Met Ala Val Ile Tyr Trp Asp Arg Ser Lys Ile Val  
 1 5 10 15  
 Trp Ser Phe Glu Pro Trp Ser Leu Arg Leu Thr Trp Tyr Gly Val Phe  
 20 25 30  
 Phe Thr Val Gly Ile Phe Leu Ala Cys Leu Ser Ala Arg Tyr Leu Ala  
 35 40 45  
 Leu Ser Tyr Tyr Gly Leu Lys Asp His Leu Ser Phe Ser Lys Ser Gln  
 50 55 60  
 Leu Arg Val Ala Leu Glu Asn Phe Phe Ile Tyr Ser Ile Leu Phe Ile  
 65 70 75 80  
 Val Pro Gly Ala Arg Leu Ala Tyr Val Ile Phe Tyr Gly Trp Ser Phe  
 85 90 95  
 Tyr Leu Gln His Pro Glu Glu Ile Ile Gln Ile Trp His Gly Gly Leu  
 100 105 110  
 Ser Ser His Gly Gly Val Leu Trp Leu Ser Phe Val Gly Gly His Phe  
 115 120 125  
 Phe Leu Asp Ile  
 130

&lt;210&gt;1184

&lt;211&gt;171

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1184

Met Ser Val His Ile Thr Pro Arg Lys Cys Phe Ile Leu Cys Ile Leu  
 1 5 10 15  
 Ser Met Phe Thr Leu Pro Thr Leu Phe Pro Lys Ala His Leu Ile Leu  
 20 25 30  
 Phe Ser Pro Tyr Ile Val Leu Cys Phe Tyr Cys Phe Ser Lys Asp Lys  
 35 40 45  
 Gly Leu Val Leu Ala Leu Gly Cys Gly Val Leu Ser Asp Leu Ala Leu  
 50 55 60  
 Gly Ser Arg Gly Val Phe Leu Leu Leu Tyr Pro Leu Thr Ala Leu Ile  
 65 70 75 80  
 Thr His Lys Ala His Leu Ile Phe Ser Lys Glu Ser Lys Ala Ala Leu  
 85 90 95  
 Val Ile Val Asn Met Ile Phe Tyr Gly Val Phe Leu Leu Leu Thr Ile  
 100 105 110  
 Pro Met Cys Ala Leu Phe Gly His Glu Val Arg Trp Ser Ile Asp Val  
 115 120 125  
 Leu Met Ile Pro Leu Lys Cys Ser Phe Leu Asp Asn Leu Ile Phe Thr  
 130 135 140



Ser Val Ile Tyr Ile Leu Pro Cys Ala Ile Asn Ser Gly Ile His Lys  
 145 150 155 160  
 Met Ile Ser Phe Phe Arg Arg Leu Val Cys Tyr  
 165 170

&lt;210&gt;1185

&lt;211&gt;205

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1185

Met Phe Met Lys Ile Cys Ser Leu Lys Leu Lys Asn Phe Arg Asn His  
 1 5 10 15  
 Ser Asp Leu Glu Ile Ser Leu Ala Pro Lys Leu Asn Tyr Ala Gln Gly  
 20 25 30  
 Lys Thr Asn Leu Leu Glu Ala Leu Tyr Val Leu Ser Leu Gly Arg Ser  
 35 40 45  
 Phe Arg Thr Gln His Leu Thr Asp Thr Ile Thr Phe Gly Ser Ser His  
 50 55 60  
 Phe Phe Leu Glu Thr Gln Phe Glu Lys Asp His Leu Pro Gln Ala Leu  
 65 70 75 80  
 Ser Ile Tyr Thr Asp Lys Gln Gly Lys Lys Ile Cys Tyr Asn Gln Leu  
 85 90 95  
 Pro Ile Lys Thr Leu Ser Gln Leu Ile Gly Lys Val Pro Ile Val Leu  
 100 105 110  
 Phe Ser Ser Lys Asp Arg Leu Leu Ile Ser Gly Ala Pro Ala Asp Arg  
 115 120 125  
 Arg Leu Phe Leu Asn Leu Leu Leu Ser Gln Cys Asp Asn His Tyr Thr  
 130 135 140  
 Leu Cys Leu Ser Tyr Tyr His Arg Ala Leu Gln Gln Arg Asn Ala Leu  
 145 150 155 160  
 Leu Lys Ser Lys Gln Thr Ser Thr Val Ala Ser Gly Met Asn Ser Trp  
 165 170 175  
 Ser Asn Thr Ala Pro Thr Tyr Pro Ser Asn Gly Phe Ser Val Val Arg  
 180 185 190  
 Asn Phe Gln Ile Tyr Pro Lys Asn Phe Gly Leu Thr Thr  
 195 200 205

&lt;210&gt;1186

&lt;211&gt;81

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1186

Leu Arg Phe Arg Asn Ile Lys Lys Ser Leu Ile Phe Ile Lys Arg Ile  
 1 5 10 15  
 Arg Tyr Ser Gln Ser Gly Lys Glu Gln Lys Gly Ala Arg Pro Phe Phe  
 20 25 30  
 Lys Lys Ser Ile Thr Ser Ser Leu Val Ile Leu Leu Leu Glu Ala Ile  
 35 40 45  
 Phe Asn Glu Asn Phe Ser Ser Ile Ile Gln Asn Asn Phe Asn Lys Asn  
 50 55 60  
 Phe Lys Asn Lys Asn Ile Ser Ile Asn Arg Ile Phe Val Lys Phe Thr  
 65 70 75 80  
 Ile

&lt;210&gt;1187

&lt;211&gt;79

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1187

Val Gln Leu Phe Gln Tyr Met Asn Glu Ser Gly Trp Asp Trp Leu Cys  
 1 5 10 15  
 Asp Phe Asp Ser Gln Gly Glu Gly Phe Gln Leu Ser Arg Leu Val Gly  
 20 25 30  
 Leu Leu His Ser Ser Trp Ala Leu Tyr Glu Ala Lys Glu Gln Phe Tyr  
 35 40 45  
 Leu Pro Glu Val Ser Leu Leu Thr Trp Glu Glu Leu Ile Glu Met Gln

50 55 60  
 Phe Val Lys Gln Thr Asn Lys Thr Arg Gly Cys Lys Arg Ser Leu  
 65 70 75  
 <210>1188  
 <211>119  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1188  
 Met Pro Val Ser Ser Ala Pro Leu Pro Thr Ser His Arg Pro Ser Ser  
 1 5 10 15  
 Gly Asn Leu Gly Leu Met Glu Pro Asn Ser Lys Ala Leu Lys Ala Lys  
 20 25 30  
 His Gln Asp Lys Thr Thr Lys Thr Ile Lys Leu Leu Val Lys Ile Leu  
 35 40 45  
 Val Ala Ile Leu Val Ile Glu Val Leu Gly Ile Ile Ala Ala Phe Phe  
 50 55 60  
 Ile Pro Gly Thr Pro Pro Ile Cys Leu Ile Ile Leu Gly Gly Leu Ile  
 65 70 75 80  
 Leu Thr Thr Val Leu Cys Val Leu Leu Leu Val Ile Lys Leu Ala Leu  
 85 90 95  
 Val Asn Lys Thr Glu Gly Thr Thr Ala Glu Gln Gln Ile Lys Arg Lys  
 100 105 110  
 Leu Ser Ser Lys Ser Ile Ser  
 115  
 <210>1189  
 <211>105  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1189  
 Met Ser Ser Pro Val Val Thr Gly Thr Ser Ser Ala Ser Pro Val Glu  
 1 5 10 15  
 Gln Thr Lys Leu Gly Glu Phe Leu Glu Arg Leu Ser Gly Ser Gly Arg  
 20 25 30  
 Cys Ile Lys Ile Ala Phe Ala Ala Ser Thr Ala Leu Leu Leu Leu Asn  
 35 40 45  
 Thr Phe Val Ser Gly Ile Val Ala Ile Ala Met Ile Phe Val Ala Thr  
 50 55 60  
 Ser Val Gly Ala Tyr Phe Thr Val Ile Gly Pro Leu Phe Leu Leu Ser  
 65 70 75 80  
 Leu Ile Leu Leu Ala Ile Met Leu Ile Ser Met Tyr Lys Ile Thr His  
 85 90 95  
 Pro Ser Gln Asn Thr Pro Ile Ser Asn  
 100 105  
 <210>1190  
 <211>162  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1190  
 Met Leu Cys Thr Cys Ser Arg Ile Gln Asp Gly Asn Pro Trp Met Lys  
 1 5 10 15  
 Ser Glu Arg Leu Lys Lys Leu Glu Ser Glu Leu His Asp Leu Thr Gln  
 20 25 30  
 Trp Met Gln Leu Gly Leu Val Pro Lys Lys Glu Ile Ser Arg His Gln  
 35 40 45  
 Glu Glu Ile Arg Ile Leu Glu His Lys Ile Tyr Glu Glu Lys Glu Arg  
 50 55 60  
 Leu Gln Leu Leu Lys Glu Asn Gly Glu Ile Glu Glu Tyr Val Thr Pro  
 65 70 75 80  
 Arg Arg Ser Pro Ala Lys Thr Val Tyr Pro Asp Gly Pro Ser Met Ser  
 85 90 95  
 Asp Ile Glu Phe Val Glu Pro Thr Glu Thr Glu Ile Asp Ile Asp Pro  
 100 105 110  
 Gly Glu Thr Val Glu Leu Glu Leu Thr Asp Glu Gly Arg Glu Asp Gly  
 115 120 125

Ala Val Glu Val Asp Tyr Ser His Glu Asp Asp Glu Asp Pro Phe Ser  
 130 135 140  
 Asp Arg Asn Arg Trp Arg Arg Gly Gly Ile Ile Asp Pro Asp Ala Asn  
 145 150 155 160  
 Glu Trp

&lt;210&gt;1191

&lt;211&gt;83

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1191

Leu Val Ile Gln Ile Gly Val Leu Pro Pro Leu Val Ala Thr Lys Lys  
 1 5 10 15  
 Ile Asp Ile Asn Arg Phe Met Gln Asp Ala Asp Asn Trp Ile Pro Met  
 20 25 30  
 Phe Ser His Pro Phe Phe Leu Arg Glu Lys Thr Leu Ser Asp Gly Lys  
 35 40 45  
 Asp Ile His Ile Leu Ser Arg Leu Lys Gly Leu Gln Thr Cys Ala Pro  
 50 55 60  
 Cys Ser Pro His Glu Glu Arg Thr Ile Thr Leu Leu Ser His Ser Asn  
 65 70 75 80  
 Ser Val Ser

&lt;210&gt;1192

&lt;211&gt;95

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1192

Met Asn Lys Ser Arg Phe Leu Arg Leu Cys Cys Cys Leu Cys Phe Cys  
 1 5 10 15  
 Gly Ser Leu Phe Tyr Phe Tyr Ile Asn Lys Gln Asn Ser Leu Thr Lys  
 20 25 30  
 Leu Arg Leu Glu Ile Pro Cys Leu Ser Val Arg Leu Arg Gln Leu Glu  
 35 40 45  
 Gln Gln Asn Ile Ser Leu Arg Phe Leu Ile Asp Lys Ile Glu Arg Pro  
 50 55 60  
 Asp His Leu Met Glu Ile Ala Ala Leu Pro Glu Tyr Gln Tyr Leu Glu  
 65 70 75 80  
 Tyr Pro Ser Glu Glu Ser Ile Ser Leu Leu Ser Tyr Glu Leu Pro  
 85 90 95

&lt;210&gt;1193

&lt;211&gt;101

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1193

Met Asp Pro Ala Ser Pro Val Ala Pro His Val Leu Gln Asp His Val  
 1 5 10 15  
 Gln Leu Ser Ser Glu Glu Leu Ser Ala Leu Ser Ser Gly Val Ser Arg  
 20 25 30  
 Val Lys Lys Leu Thr Ile Ala Ile Met Val Leu Ser Leu Ile Ala Ile  
 35 40 45  
 Ser Leu Val Ala Cys Gly Leu Phe Leu Thr Gly Ser Ala Pro Leu Gln  
 50 55 60  
 Leu Ser Ile Trp Ile Ala Ala Ser Cys Ile Thr Leu Ser Met Leu Val  
 65 70 75 80  
 Cys Ala Cys Trp Arg Tyr Lys Ile Ser Asn Ala Leu Glu Lys Thr Lys  
 85 90 95  
 Val Ala His Glu Ser  
 100

&lt;210&gt;1194

&lt;211&gt;77

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1194

Val Met Trp Tyr Ser Asp Tyr His Val Trp Ile Leu Pro Val His Glu  
 1 5 10 15  
 Arg Val Val Arg Leu Gly Leu Thr Glu Lys Met Gln Lys Asn Leu Gly  
 20 25 30  
 Ala Ile Leu His Val Asp Leu Pro Ser Val Gly Ser Leu Cys Lys Glu  
 35 40 45  
 Gly Glu Val Leu Val Ile Leu Glu Ser Ser Lys Ser Ala Ile Arg Gly  
 50 55 60  
 Val Lys Ser Cys Ile Arg Arg Gly Tyr Arg Tyr Gln Pro  
 65 70 75

&lt;210&gt;1195

&lt;211&gt;172

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1195

Met Gly Phe Lys Asn Ile Cys Lys Gln Gly Ser Gln Leu Tyr Leu Asn  
 1 5 10 15  
 Gly Ile Phe Pro Glu Arg Ile Leu Ala Arg Lys Leu Lys Asn Cys Ala  
 20 25 30  
 Lys Ser Tyr Pro Arg Thr Ala Leu Thr Ile Glu Val Leu Val Ser Ser  
 35 40 45  
 Val Leu Gly Ala Leu Lys Val Ile Leu Ile Pro Cys Ala Ser Thr Tyr  
 50 55 60  
 Ala Ala Leu Thr Leu Pro Leu Arg Ala Leu Phe Asn Ala Ile Lys Thr  
 65 70 75 80  
 Lys Ser Cys Gln His Leu Ala Ser Tyr Ala Met Ala Trp Leu Leu His  
 85 90 95  
 Ile Leu Thr Ile Ala Val Ile Ile Gly Leu Val Phe Ser Leu Val Phe  
 100 105 110  
 Ile Pro Pro Pro Val Val Phe Ile Ser Leu Gly Leu Leu Met Ser Val  
 115 120 125  
 Thr Thr Ser Val Thr Leu Phe Gln Val His Lys Asn Leu Phe Pro Pro  
 130 135 140  
 Tyr Glu Pro Pro Pro Ser Arg Pro His Thr Pro Pro Pro Phe Ala Asp  
 145 150 155 160  
 Glu Tyr Val Pro Leu Ile Ser Glu Ser Tyr Phe Asp  
 165 170

&lt;210&gt;1196

&lt;211&gt;224

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1196

Val Thr Pro Ser Ala Asp Asp Ala Lys Lys Ile Ala Val Glu Lys Lys  
 1 5 10 15  
 Lys Asp Leu Ser Ala Ser Ala Arg Met Glu Glu His Glu Ala Ser Gln  
 20 25 30  
 Arg Gln Asp Ala Arg His Arg Arg Ile Gly Arg Glu Ala Gln Gly Ser  
 35 40 45  
 Phe Phe Tyr Ser Ser Arg Asn Pro Glu His Arg Arg Ser Phe Gly Ser  
 50 55 60  
 Leu Ser Arg Phe Lys Thr Lys Pro Ser Asp Ala Ala Ser Thr Arg Pro  
 65 70 75 80  
 Ala Ser Ile Ser Pro Pro Phe Lys Asp Asp Phe Gln Pro Tyr His Phe  
 85 90 95  
 Lys Asp Leu Arg Ser Ser Ser Phe Gly Ser Gly Ala Ser Ser Ala Phe  
 100 105 110  
 Thr Pro Ile Met Pro Ala Ser Ser Arg Ser Pro Asn Phe Ser Thr Gly  
 115 120 125  
 Thr Val Leu His Pro Glu Pro Val Tyr Pro Lys Gly Gly Lys Glu Pro  
 130 135 140  
 Ser Ile Pro Arg Val Ser Ser Ser Ser Arg Arg Ser Pro Arg Asp Arg  
 145 150 155 160  
 Gln Asp Lys Gln Gln Gln Gln Asn Gln Asp Glu Glu Gln Lys Gln  
 165 170 175

Gln Ser Lys Lys Lys Ser Gly Lys Ser Asn Gln Ser Leu Lys Thr Pro  
                   180                  185                  190  
 Pro Pro Asp Gly Lys Ser Thr Ala Asn Leu Ser Pro Ser Asn Pro Phe  
                   195                  200                  205  
 Ser Asp Gly Tyr Asp Glu Arg Glu Lys Arg Lys His Arg Lys Asn Lys  
                   210                  215                  220  
 <210>1197  
 <211>139  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1197  
 Leu Ile Lys Lys Arg Ala Ile Phe Glu Arg Met Phe Pro Ile Pro Pro  
   1                  5                  10                  15  
 Pro His Cys Pro Pro Asn Asn Lys Asn Asn Phe Tyr His Leu Thr Thr  
                   20                  25                  30  
 Asp Thr Lys Asp Pro Leu Leu Leu Arg Ile Leu Arg Thr Ile Gly Tyr  
                   35                  40                  45  
 Val Leu Leu His Ile Ile Thr Leu Gly Leu Leu Leu Leu Ile His Tyr  
                   50                  55                  60  
 Tyr Lys His His Arg Val Val Arg Lys Glu Gly Leu Pro Thr Pro Pro  
                   65                  70                  75                  80  
 Thr Leu Pro Lys Gly Pro Glu Pro Lys Thr Ile Glu Ile Ala Lys Gln  
                   85                  90                  95  
 Pro Pro Lys Asp Gly Glu Asp Lys Lys Pro Asp Val Pro Lys Pro Gly  
                   100                  105                  110  
 Thr Pro Pro Pro Glu Asp Thr Pro Pro Pro Pro Pro Lys Ala Pro Ser  
                   115                  120                  125  
 Pro Ala Ser Pro Lys Val Pro Lys Thr Thr Cys  
                   130                  135  
 <210>1198  
 <211>79  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1198  
 Val Val Glu Ser Ala Phe Tyr Gln Gln Val Val Leu Gly Thr Phe Gly  
   1                  5                  10                  15  
 Leu Ala Gly Glu Gly Ala Leu Gly Gly Gly Gly Val Ser Ser Gly  
                   20                  25                  30  
 Gly Gly Val Pro Gly Leu Gly Thr Ser Gly Phe Leu Ser Ser Pro Ser  
                   35                  40                  45  
 Leu Gly Gly Cys Leu Ala Ile Ser Ile Val Phe Gly Ser Gly Pro Leu  
                   50                  55                  60  
 Gly Arg Val Gly Gly Val Gly Lys Pro Ser Phe Leu Thr Thr Arg  
                   65                  70                  75  
 <210>1199  
 <211>90  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1199  
 Leu Asp Asp Ser Trp Ile Leu Glu Val Lys Val Thr Pro Lys Ala Lys  
   1                  5                  10                  15  
 Glu Asn Lys Ile Val Gly Phe Asp Gly Gln Ala Leu Lys Val Arg Val  
                   20                  25                  30  
 Thr Glu Pro Pro Glu Lys Gly Lys Ala Asn Asp Ala Val Ile Ser Leu  
                   35                  40                  45  
 Leu Ala Lys Ala Leu Ser Leu Pro Lys Arg Asp Val Thr Leu Ile Ala  
                   50                  55                  60  
 Gly Glu Thr Ser Arg Lys Lys Lys Phe Leu Leu Pro Asn Arg Val Gln  
                   65                  70                  75                  80  
 Asp Ile Ile Phe Ser Leu His Ile Asp Val  
                   85                  90  
 <210>1200  
 <211>107  
 <212>PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1200

Leu Gln Asn Ser Met His Lys Val Phe Ala Asp Pro Ser Leu Thr Asp  
 1 5 10 15  
 Thr Ile Thr Leu Pro Ile Asp Ala Pro Gly Asp Pro Ala Tyr Pro His  
 20 25 30  
 Val Leu Gly Glu Ala Phe Ile Ser Pro Gln Ala Ala Leu Arg Phe Leu  
 35 40 45  
 Glu Asn Thr Ser Pro Asn Gln Glu Asp Ile Tyr Glu Glu Ile Ser Arg  
 50 55 60  
 Tyr Leu Val His Ser Ile Leu His Met Leu Gly Tyr Asp Asp Thr Ser  
 65 70 75 80  
 Ser Glu Glu Lys Arg Lys Met Arg Val Lys Glu Asn Gln Ile Leu Cys  
 85 90 95  
 Met Leu Arg Lys Lys His Ala Leu Leu Thr Ala  
 100 105

&lt;210&gt;1201

&lt;211&gt;279

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1201

Met Ser Ser Leu Leu Ser Cys Gly Arg Ile Glu Pro Thr Arg Val Thr  
 1 5 10 15  
 Cys Ser Leu Lys Thr Tyr Leu Glu Asp Thr Ser Gln Asn Gln Leu Ser  
 20 25 30  
 Thr Arg Leu Val Arg Ala Ser Val Ile Phe Leu Cys Ala Leu Leu Ile  
 35 40 45  
 Ile Leu Val Cys Val Ala Leu Ser Ser Leu Ile Pro Ser Ile Met Ala  
 50 55 60  
 Leu Ala Thr Ser Phe Thr Val Met Gly Leu Ile Leu Phe Val Met Ser  
 65 70 75 80  
 Leu Leu Gly Asp Val Ala Ile Ile Ser Tyr Leu Thr Tyr Ser Thr Val  
 85 90 95  
 Thr Ser Tyr Arg Gln Asn Lys Arg Ala Phe Glu Ile His Lys Pro Ala  
 100 105 110  
 Arg Ser Val Tyr Tyr Glu Gly Val Arg His Trp Asp Leu Gly Arg Ser  
 115 120 125  
 Ser Leu Gly Thr Gly Glu Ile Pro Ile Val Arg Thr Leu Phe Ser Pro  
 130 135 140  
 Phe Gln Asn His Gly Leu Asn His Ala Leu Ala Ala Lys Ile Phe Leu  
 145 150 155 160  
 Phe Met Glu His Phe Ser Pro Glu Pro Pro Asn Glu Pro Leu Val Asp  
 165 170 175  
 Trp Ala Cys Leu Ile Arg Asp Phe Arg Pro His Val Ser Ser Leu Cys  
 180 185 190  
 Phe Val Ile Glu Lys Gln Gly Ser Ser Leu Arg Thr Lys Glu Gly Asn  
 195 200 205  
 Thr Ile Cys Glu Ala Phe Arg Ser Asp Tyr Asp Ala His Phe Ala Met  
 210 215 220  
 Val Asp Cys Tyr Arg Leu Ile His Ser Lys Leu Ile Ile Glu Lys Met  
 225 230 235 240  
 Gly Leu Lys Asn Ile Asp Ile Ile Pro Ser Val Met Val Arg Glu Asp  
 245 250 255  
 Tyr Pro Ser Arg Pro Gly Glu Gly Tyr Arg Glu Gly Leu Leu Arg Met  
 260 265 270  
 Tyr Gly Gly Lys Gly Ala Leu  
 275

&lt;210&gt;1202

&lt;211&gt;239

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1202

Leu Lys Val Gln Lys Leu Arg Gln Pro Ser Phe Tyr Pro Lys Arg Leu  
 1 5 10 15

Met Thr Leu Tyr Leu Gly Leu Asn Gln Lys Thr Ala Arg Lys Tyr Gln  
 20 25 30  
 Ala His Tyr Leu Pro Ile Leu Thr Leu Phe Pro Tyr Ala Lys Ser Thr  
 35 40 45  
 Pro Gln Asn Lys Arg Ala Leu Gln Phe Leu Pro Gln Ala Thr His Val  
 50 55 60  
 Ile Leu Thr Ser Pro Ser Ser Thr His Leu Phe Leu Ser Arg Met Thr  
 65 70 75 80  
 Ser Leu Leu Ser Lys Ala Thr Leu Lys Thr Lys Thr Tyr Leu Cys Ile  
 85 90 95  
 Gly Glu Ser Thr Lys Glu Arg Leu Leu Ser Phe Leu Gly Gln Val Lys  
 100 105 110  
 Tyr Val Val Ala Thr Gln Glu Ile Ala Glu Gly Ile Phe Pro Leu Leu  
 115 120 125  
 Gln Ala Leu Pro Ser Ser Ala Arg Ile Leu Tyr Pro His Ser Ser Leu  
 130 135 140  
 Ala Arg Pro Val Ile Arg Glu Phe Leu Tyr Asn Arg Phe Thr Phe Phe  
 145 150 155 160  
 Ser Tyr Pro His Tyr Thr Val Lys Pro Arg Lys Leu Lys Lys Asn Ile  
 165 170 175  
 Leu Ser Lys Tyr Lys Lys Ile Ile Phe Thr Ser Pro Ser Thr Val Arg  
 180 185 190  
 Ala Phe Ala Lys Ile Phe Pro Arg Phe Pro Glu Lys Thr Tyr Trp Cys  
 195 200 205  
 Gln Gly Arg Met Thr Leu Gln Glu Phe Gln Lys Phe Ser Ser Gln Lys  
 210 215 220  
 Gln Val Ser Leu Leu Glu Thr Leu Gly Lys Ser Arg Thr Ser Pro  
 225 230 235

&lt;210&gt;1203

&lt;211&gt;110

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1203

Met Ala Ser Ser Ala Thr Pro Gly Phe Asp Gly Thr Ala Pro Ser Leu  
 1 5 10 15  
 Phe Pro Pro Ala Thr Arg Pro Arg Tyr Asn Phe Lys Leu Ala Leu Phe  
 20 25 30  
 Val Thr Ile Ala Ile Ala Leu Val Trp Ile Ala Leu Ile Ala Thr Thr  
 35 40 45  
 Ile Ala Ile Gly Leu Cys Ile His Pro Leu Cys Ser Phe Ile Phe Leu  
 50 55 60  
 Thr Ala Ile Pro Leu Tyr Phe Ile Ser Arg Tyr Ile Cys Ser His Tyr  
 65 70 75 80  
 Ala Arg Asn Val Tyr Ile Ala Leu Asp Val Val Pro Asp His Ser Lys  
 85 90 95  
 Leu Gln Asp Met Arg Ser His Ser Pro Ile Phe Ser Asp Arg  
 100 105 110

&lt;210&gt;1204

&lt;211&gt;196

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1204

Met Leu Ile Leu Gly Leu Leu Thr Pro Thr Phe Gly Ser Leu Lys Thr  
 1 5 10 15  
 Phe Pro Ser His Ser Ala Gly Lys Gln Thr His Ser Met Ile Gly Trp  
 20 25 30  
 Val Pro Gln His Phe Ser Tyr Asp Pro Cys Phe Pro Ile Ser Val Lys  
 35 40 45  
 Asp Val Val Leu Ser Gly Arg Leu Ser Gln Leu Ser Trp His Xaa Lys  
 50 55 60  
 Tyr Lys Xaa Lys Asp Phe Glu Ala Val Asp His Ala Leu Asp Asn Val  
 65 70 75 80  
 Gly Leu Ser Asp His His His His Cys Phe Ala His Leu Ser Gly Gly  
 85 90 95

Gln Ile Gln Arg Val Leu Leu Ala Arg Ala Leu Ala Ser Tyr Pro Glu  
 100 105 110  
 Ile Leu Ile Leu Asp Glu Pro Thr Thr Asn Ile Asp Pro Asp Asn Gln  
 115 120 125  
 Gln Arg Ile Leu Ser Ile Leu Lys Lys Leu Asn Arg Thr Cys Thr Ile  
 130 135 140  
 Leu Met Val Thr His Asp Leu His His Thr Thr Asn Tyr Phe Asn Lys  
 145 150 155 160  
 Val Phe Tyr Met Asn Lys Thr Leu Thr Ser Leu Ala Asp Thr Ser Thr  
 165 170 175  
 Leu Thr Asp Gln Phe Cys Cys His Pro Tyr Lys Asn Gln Glu Phe Ser  
 180 185 190  
 Cys Ser Pro His  
 195

&lt;210&gt;1205

&lt;211&gt;92

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1205

Met Leu Ser Ser Leu Ile Arg Asp Ser Phe Pro Leu Leu Ile Leu Leu  
 1 5 10 15  
 Pro Thr Phe Leu Ala Ala Leu Gly Ala Ser Val Ala Gly Gly Val Met  
 20 25 30  
 Gly Thr Tyr Ile Val Val Lys Arg Ile Val Ser Ile Ser Gly Ser Ile  
 35 40 45  
 Ser His Ala Ile Leu Gly Gly Ile Gly Leu Thr Leu Trp Ile Gln Tyr  
 50 55 60  
 Lys Leu His Leu Ser Phe Phe Pro Met Tyr Gly Ala Ile Val Gly Ala  
 65 70 75 80  
 Ile Phe Leu Ala Leu Cys Ile Gly Lys Arg Ser Thr  
 85 90

&lt;210&gt;1206

&lt;211&gt;188

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1206

Leu His Arg Gln Lys Ile His Leu Lys Tyr Gln Glu Arg Glu Asp Ser  
 1 5 10 15  
 Leu Ile Ala Met Ile Trp Ser Val Gly Met Ala Ile Gly Ile Ile Phe  
 20 25 30  
 Ile Ser Arg Leu Pro Thr Phe Asn Gly Glu Leu Ile Asn Phe Leu Phe  
 35 40 45  
 Gly Asn Ile Leu Trp Val Thr Pro Ser Asp Leu Tyr Ser Leu Xaa Ile  
 50 55 60  
 Phe Asp Leu Leu Val Leu Gly Ile Val Val Leu Cys His Thr Arg Phe  
 65 70 75 80  
 Leu Ala Leu Cys Phe Asp Glu Arg Tyr Thr Ala Leu Asn His Cys Ser  
 85 90 95  
 Val Gln Leu Trp Tyr Phe Leu Leu Leu Val Leu Thr Ala Ile Thr Ile  
 100 105 110  
 Val Met Leu Ile Tyr Val Met Gly Thr Ile Leu Met Leu Ser Met Leu  
 115 120 125  
 Val Leu Pro Val Ala Ile Ala Cys Arg Phe Ser Tyr Lys Met Thr Arg  
 130 135 140  
 Ile Met Phe Ile Ser Val Leu Leu Asn Ile Leu Cys Ser Phe Ser Gly  
 145 150 155 160  
 Ile Cys Ile Ala Tyr Cys Leu Asp Phe Pro Val Gly Pro Thr Ile Ser  
 165 170 175  
 Leu Leu Met Gly Leu Xaa Tyr Thr Ala Ser Leu Val  
 180 185

&lt;210&gt;1207

&lt;211&gt;112

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae



&lt;400&gt;1207

Val Phe Ser Tyr Leu Leu Leu Cys Ile Ile Leu Val Tyr Val Arg Phe  
 1 5 10 15  
 Met Tyr Glu Gly Lys Ser Arg Met Ala Ser Pro Thr Pro Gly Gln Leu  
 20 25 30  
 His Leu Gln Gln Lys Val Glu Ser Lys Ala Tyr Asp Tyr Ser Arg Ser  
 35 40 45  
 Leu Ala Met Ile Ala Thr Ala Leu Leu Phe Phe Ile Val Ala Leu Ile  
 50 55 60  
 Leu Ser Gly Leu Ser Leu Leu Pro Gln Val Phe Leu Pro Phe Ser Gly  
 65 70 75 80  
 Ala Tyr Phe Ile Ile Gly Ser Phe Leu Ala Phe Ile Ala Leu Gly Ile  
 85 90 95  
 Leu Leu Ile Asn Cys Val Cys Asp Leu Lys Gln Tyr Leu Thr Ser Ser  
 100 105 110

&lt;210&gt;1208

&lt;211&gt;320

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1208

Val Leu Ile Ser Ile Ser Leu Ala Thr Leu Pro Ile Leu Ala Phe Ser  
 1 5 10 15  
 Trp Ala Ser Phe Ile Glu Pro Asn Trp Leu Arg Thr Thr Ala Ile Pro  
 20 25 30  
 Trp Arg Leu Pro Lys Lys His Ala His Leu His Gly Leu Arg Ile Ala  
 35 40 45  
 Gln Ile Ser Asp Leu His Phe His Lys Arg Val Pro Glu Lys Phe Leu  
 50 55 60  
 Asn Lys Val Ser Lys Ser Ile Lys Asn Phe Ser Pro Asp Leu Ile Val  
 65 70 75 80  
 Phe Cys Gly Asp Leu Leu Cys Arg Ala Arg Leu Glu Asp Lys Glu Arg  
 85 90 95  
 Leu Glu Thr Phe Leu Asn Thr Leu Glu Ala Pro Leu Gly Val Phe Ala  
 100 105 110  
 Ile Leu Gly Asn His Asp Tyr Ser Ser Tyr Ile Ser Arg Asn Thr Lys  
 115 120 125  
 Gly Glu Ile Thr Cys Ile Pro Glu Glu Lys Ser Arg Pro Ile Gln Arg  
 130 135 140  
 Ala Ile Ile Ala Val Met Gln Gly Leu Phe Ser Ser Pro Ser Tyr Arg  
 145 150 155 160  
 Tyr Asp Pro Asn Leu Thr Pro Gln Glu Pro His Pro Asp Leu Leu Lys  
 165 170 175  
 Leu Leu Lys Asn Thr Pro Leu Thr Leu Leu His Asn Thr Thr His Val  
 180 185 190  
 Ile Pro Asn Thr Leu Asn Ile Val Gly Leu Gly Asp Leu Phe Ala Arg  
 195 200 205  
 Gln Phe His Pro Glu Gln Ala Phe Lys Asn Tyr Asp Pro Ser Leu Pro  
 210 215 220  
 Gly Leu Leu Leu Ser His Asn Pro Asp Gly Ile Thr Arg Leu Gln Gln  
 225 230 235 240  
 Tyr Pro Gly Asp Phe Val Leu Ser Gly His Ser His Gly Pro Gln Val  
 245 250 255  
 Thr Leu Ser Trp Pro Lys Phe Ala Arg Lys Phe Phe Glu Arg Leu Ser  
 260 265 270  
 Gly Leu Glu Asn Pro Tyr Leu Ala Arg Gly Tyr Phe Val Thr Lys Glu  
 275 280 285  
 Gly Lys Gln Leu Tyr Val Asn Arg Gly Leu Gly Gly Leu Lys Arg Ile  
 290 295 300  
 Arg Phe Cys Ser Pro Pro Glu Ile Cys Tyr Ile Thr Cys Ser Tyr Asp  
 305 310 315 320

&lt;210&gt;1209

&lt;211&gt;185

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1209

Met Thr Ala Thr Met Ser Leu Leu Asn Leu Pro Ser Ser Gln Asp Ser  
 1 5 10 15  
 Ala Ser Glu Asp Ser Thr Ser Gln Ser Gln Ile Phe Asp Pro Ile Arg  
 20 25 30  
 Asn Arg Glu Leu Val Ser Thr Pro Glu Glu Lys Val Arg Gln Arg Leu  
 35 40 45  
 Leu Ser Phe Leu Met His Lys Leu Asn Tyr Pro Lys Lys Leu Ile Ile  
 50 55 60  
 Ile Glu Lys Glu Leu Lys Thr Leu Phe Pro Leu Leu Met Arg Lys Gly  
 65 70 75 80  
 Thr Leu Ile Pro Lys Arg Arg Pro Asp Ile Leu Ile Ile Thr Pro Pro  
 85 90 95  
 Thr Tyr Thr Asp Ala Gln Gly Asn Thr His Asn Leu Gly Asp Pro Lys  
 100 105 110  
 Pro Leu Leu Ile Glu Cys Lys Ala Leu Ala Val Asn Gln Asn Ala  
 115 120 125  
 Leu Lys Gln Leu Leu Ser Tyr Asn Tyr Ser Ile Gly Ala Thr Cys Ile  
 130 135 140  
 Ala Met Ala Gly Lys His Ser Gln Val Ser Ala Leu Phe Asn Pro Lys  
 145 150 155 160  
 Thr Gln Thr Leu Asp Phe Tyr Pro Gly Leu Pro Glu Tyr Ser Gln Leu  
 165 170 175  
 Leu Asn Tyr Phe Ile Ser Leu Asn Leu  
 180 185

&lt;210&gt;1210

&lt;211&gt;173

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1210

Met Ala Asp Asp Thr Leu Ile Pro Lys Leu Met Lys Asn Ser Leu Ser  
 1 5 10 15  
 Gln Ala Cys Ser Glu Gly Leu Leu Ile Ala Lys Tyr Pro Pro Leu Gln  
 20 25 30  
 Val Ile Val His Phe Asp Asn Asn Leu Val Val Lys Thr His Leu Ser  
 35 40 45  
 Val Ala Pro Val Phe Ser Cys Leu Phe Leu Gly Pro Ala Ala His Lys  
 50 55 60  
 Ala Met Gln Glu Ile Val Leu Trp Cys Ser Arg Tyr Ala Asn Lys Glu  
 65 70 75 80  
 His Pro Pro Phe Ser Ser His Phe Ala Lys Asp Leu Ile Pro Ser Gln  
 85 90 95  
 Tyr Leu Glu Ile Leu Asn Cys Val Ala Glu Ile Pro Phe Gly Glu Gln  
 100 105 110  
 Gln Thr Tyr Ala Glu Ile Ala Lys Lys Thr Asp Thr His Pro Arg Thr  
 115 120 125  
 Val Gly Ala Ala Cys Lys Gln Asn Pro Phe Leu Leu Phe Phe Pro Cys  
 130 135 140  
 His Arg Val Val Gly Ser His Gly Glu Arg Asn Tyr Val Leu Gly Pro  
 145 150 155 160  
 Val Ile His Glu Ile Leu Leu Lys Phe Glu Asn Ser Tyr  
 165 170

&lt;210&gt;1211

&lt;211&gt;137

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1211

Met Ile Glu Asn Asp Phe Pro Glu Ala Ser Asn Phe Glu Ser Ser His  
 1 5 10 15  
 Phe Tyr Arg Asp Lys Val Gly Val Ile Ile Leu Cys Gly Gly Glu Gly  
 20 25 30  
 Lys Arg Leu Ser Pro Leu Thr Asn Cys Arg Cys Lys Pro Thr Val Ser  
 35 40 45  
 Phe Gly Gly Arg Tyr Lys Leu Ile Asp Ile Pro Ile Ser His Ala Ile

50 55 60  
 Ser Ala Gly Phe Ser Lys Ile Phe Val Ile Gly Gln Tyr Leu Thr Tyr  
 65 70 75 80  
 Thr Leu Gln Gln His Leu Phe Lys Thr Tyr Phe Tyr His Gly Val Leu  
 85 90 95  
 Gln Asp Gln Ile His Leu Leu Ala Pro Glu Ala Arg Gln Gly Asp Gln  
 100 105 110  
 Ile Trp Tyr Gln Gly Thr Gln Met Gln Phe Glu Lys Thr Tyr Phe Ile  
 115 120 125  
 Ser Lys Ile Gln Lys Ser Asn Thr Phe  
 130 135

&lt;210&gt;1212

&lt;211&gt;94

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1212

Met Leu Ile Arg Leu Phe Leu Gly Ile Ser Leu Pro Lys Gly Phe Pro  
 1 5 10 15  
 Leu Tyr Leu Glu Pro Pro Leu Val Leu Ala Thr Phe Gln Gly Thr Gln  
 20 25 30  
 Phe Val Gly Thr Tyr Ser Glu Ala Thr Asn Pro Leu Tyr Ile Asp Asn  
 35 40 45  
 Leu Asn Leu Asn Tyr His Tyr Thr Gln Glu Leu Leu Tyr Lys Ala Val  
 50 55 60  
 Pro Cys Asn Tyr Lys Ser Ile Tyr Arg Glu Ile Pro Leu Ile Ile Phe  
 65 70 75 80  
 Pro Glu Val Leu Ile Gly Ser Thr Pro Thr Gln Ser Thr Glu  
 85 90

&lt;210&gt;1213

&lt;211&gt;168

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1213

Met Arg Gln Phe Cys Asn Leu Leu Ser Leu Ser Arg Leu Trp Leu Ala  
 1 5 10 15  
 Leu Tyr Phe Cys Gln Glu Lys Leu His Ile Arg Leu Leu Ala Ile Val  
 20 25 30  
 Gly Ala Met Leu Ser Asp Val Leu Asp Gly Tyr Leu Ala Arg Arg Tyr  
 35 40 45  
 Lys Ala Thr Ser Arg Leu Gly Ser Ile Leu Asp Pro Ile Thr Asp Lys  
 50 55 60  
 Val Phe Val Phe Val Cys Ile Thr Val Leu Tyr Met Glu Gly Ser Leu  
 65 70 75 80  
 Ser Ile Ala His Leu Phe Phe Ile Cys Ala Arg Asp Leu Phe Leu Xaa  
 85 90 95  
 Thr Phe Val Phe Tyr Leu Ser Leu Val Lys Gly Trp Lys Gly Tyr Asp  
 100 105 110  
 Tyr Gly Ser Leu Phe Trp Gly Lys Ile Phe Thr Val Val Gln Phe Ile  
 115 120 125  
 Ile Leu Leu Gly Val Thr Ala Gly Gly Glu Ile Pro Trp Thr Gly Leu  
 130 135 140  
 Val Pro Leu Val Ala Leu Gly Phe Leu Tyr Phe Leu Glu Arg Ile Met  
 145 150 155 160  
 Asp Tyr Lys Lys Gln Phe Leu Arg  
 165

&lt;210&gt;1214

&lt;211&gt;88

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1214

Met Ser Arg Ser Leu Arg Lys Gly Pro Phe Val Asp His His Leu Leu  
 1 5 10 15  
 Lys Lys Val Arg Ala Met Asn Ile Glu Glu Lys Lys Thr Pro Ile Lys  
 20 25 30

Thr Trp Ser Arg Arg Ser Met Ile Thr Pro Glu Met Ile Gly His Thr  
                   35                  40                  45  
 Phe Glu Val His Asn Gly Lys Lys Phe Leu Thr Val Phe Val Ser Glu  
           50                  55                  60  
 Thr Met Val Gly His Lys Leu Gly Glu Phe Ser Pro Thr Arg Ile Phe  
           65                  70                  75                  80  
 Lys Ser His Pro Val Lys Lys Gly  
                                   85

&lt;210&gt;1215

&lt;211&gt;252

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1215

Met Leu Ile Val Leu Ala Phe Arg Gln Val Phe Phe Ser His Ser Arg  
   1                  5                  10                  15  
 Ser Gln Leu Asp Arg Leu Lys Asn Tyr Leu Arg Leu Leu Lys Gln Asn  
           20                  25                  30  
 Phe Ala Ile Thr Leu Pro Lys Glu Arg Thr Ser Lys Gly His Ser Leu  
           35                  40                  45  
 Met Leu Thr Phe Asp Phe Ala Ser Phe Asp Phe Tyr Thr Asn Ile Phe  
           50                  55                  60  
 Pro Phe Leu Glu Glu Gln Lys Ile Pro Ala Val Val Gly Val Ala Ser  
           65                  70                  75                  80  
 Arg Tyr Ile Pro Ser Asn Ala Ala Gln Asp Leu His Pro Ser His Arg  
                   85                  90                  95  
 Leu Lys Pro Ser Glu Thr Leu Ala Phe Gln Asp Glu Ile Phe Ser Asn  
                   100                  105                  110  
 Tyr Met Pro Phe Cys Cys Gln Asn Glu Leu Ile Glu Met Ala Lys Ser  
           115                  120                  125  
 Pro Tyr Ile Gln Leu Ala Ser Ser Gly Phe Ala Ile Arg Asn Leu Met  
           130                  135                  140  
 Asn Asn Pro Pro Tyr Leu Thr Thr Glu Ile Leu Leu Ser Arg His His  
           145                  150                  155                  160  
 Ile Glu Thr Ile Thr Gly Ala Lys Pro Leu Ala Phe Leu Phe Pro Phe  
                   165                  170                  175  
 Gly Lys Ser Asp Pro Thr Ser Arg Lys Leu Ala Ala Asp His Tyr Pro  
                   180                  185                  190  
 Tyr Ser Phe Leu Leu Gly Asn Thr Ile Asn Arg Lys Leu Lys Thr His  
           195                  200                  205  
 Asn Ile Tyr Arg Leu Asp Ile Lys Pro Met Gln Tyr Val Cys Pro Ser  
           210                  215                  220  
 Leu Phe Gln Ser Ser Arg Tyr Leu Lys Asn Trp Ile Lys Glu Lys Ser  
           225                  230                  235                  240  
 Lys Gln Leu Tyr Leu Lys Lys Gln Leu Pro Lys Arg  
                   245                  250

&lt;210&gt;1216

&lt;211&gt;149

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1216

Met Ala Asp Leu Glu Val Phe Gln Ala Asp Phe Ala Leu Leu Phe Glu  
   1                  5                  10                  15  
 Ala Gly Leu Leu Ala Ile Lys Gln Gly Asp Glu Asp Ser Ala Arg Lys  
           20                  25                  30  
 Leu Phe Gln Ser Leu His Ile Leu Asn Pro Asn His Tyr Gly His Asp  
           35                  40                  45  
 Leu Gly Leu Ala Leu Ile Ser Leu His Lys Met Asp Leu Phe Asp Ala  
           50                  55                  60  
 Glu Glu Arg Leu Ser Ala Leu Ile Lys Gly Asn Glu Asp Asn Trp Ser  
           65                  70                  75                  80  
 Ile Lys Ala Phe Leu Ser Leu Thr His Met Leu Ile Val Leu His Gln  
                   85                  90                  95  
 Gly Ser Ser Phe Glu Val Arg Arg Glu Ser Leu Glu Ser Cys Leu Lys  
           100                  105                  110

Phe Ala Asp Gln Val Ile Ala Asn Cys Lys Ile Glu Ser Thr Arg Ala  
           115                          120                          125  
 Leu Ala Gln Ser Val Leu Asp Trp His Asp Thr Leu Val Ala Lys Ser  
           130                          135                          140  
 Ala Gly Pro Leu Gly  
 145  
 <210>1217  
 <211>75  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1217  
 Met Phe Phe Ala Pro Leu Leu Tyr Glu Ser Leu Arg Arg Gly Leu Met  
       1                          5                          10                          15  
 His Pro Thr Ser His Met Gln Gln Gln Leu Ala Arg Leu Glu Phe Ile  
                           20                          25                          30  
 Asn Asp Gln Leu Thr Thr Glu Leu Glu His Val Asn Glu Leu Leu Cys  
           35                          40                          45  
 Ser Leu Gly Phe Pro Glu Gly Leu Thr Thr Ile Lys Ala Ile Ala Glu  
           50                          55                          60  
 Glu Val Leu Ser Asp Asp Glu Pro Leu Leu Asp  
           65                          70                          75  
 <210>1218  
 <211>467  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1218  
 Leu Pro Ser Asn Arg Lys Asn Ala Lys Arg Asn Leu Tyr Lys Leu Ser  
       1                          5                          10                          15  
 Phe Ile Ile Val Arg Lys Cys Val Val Thr Ser Ala Leu Asn Asp Phe  
                           20                          25                          30  
 Phe Leu Thr Glu Thr Val Met Asn Ala Thr Lys His Cys Arg Ala Ser  
           35                          40                          45  
 Phe Ser Asn Ser Pro Arg His Leu Leu Ala Gln Leu Ala Glu Asp Ile  
           50                          55                          60  
 Thr Ser Thr His Gln Lys Pro Phe Thr Lys Arg Trp Ile Leu Val Ala  
           65                          70                          75                          80  
 Asn Ala Thr Thr Gly His Trp Ile Lys Asn Gln Leu Val His Val Leu  
                           85                          90                          95  
 Ser Asp His Ile Phe Met Gly Ser Thr Ile Phe Thr Ala Ser Asp Ser  
           100                          105                          110  
 Ile Val Lys His Leu Phe Leu Gly Ser Gly Cys Ser Gln Pro Asn Ile  
           115                          120                          125  
 Pro Asp Tyr Leu Thr Leu Pro Leu Leu Ile Asn Asn Ile Leu Glu Glu  
           130                          135                          140  
 Ile Ser Lys Ala Ser Lys Phe Glu Asn Gly Arg Glu Phe Leu Ser Pro  
           145                          150                          155                          160  
 Pro Thr Tyr Gly Thr Thr Lys Lys Leu Ala Ala Phe Lys Gln Phe  
           165                          170                          175  
 His Thr Phe Ser Gln Arg Pro Thr Lys Asn Ala Ser His Tyr Gln Glu  
           180                          185                          190  
 Leu Phe Gln Ile Leu Glu Ser His Phe Ser Ser Tyr Glu Glu Met Phe  
           195                          200                          205  
 Thr Thr Ile Leu Asn Asn Arg Thr Gln Glu Glu Asp Cys Ser Leu His  
           210                          215                          220  
 Ile Phe Gly Tyr Ala His Leu Pro Lys His Leu Ala Glu Phe Phe Ile  
           225                          230                          235                          240  
 Asn Leu Ser Thr Tyr Phe Pro Val Tyr Phe Tyr Cys Phe Ser Pro Cys  
           245                          250                          255  
 Arg Glu Tyr Phe Gly Asp Leu Leu Ser Asp Arg Ala Ile Asp Phe Phe  
           260                          265                          270  
 Trp Asn Gln Leu Pro Asp Ser Pro Ile Lys Asn Ala Trp Glu His Tyr  
           275                          280                          285  
 Val Leu Ser Asp Arg Gln Ala Leu Leu Ala Asn Leu Ala His Lys Ser  
           290                          295                          300

Gln Ser Ser Gln Asn Phe Phe Leu Asp Arg Glu Ile Asp Tyr Gln Glu  
 305 310 315 320  
 Met Phe Leu Pro Ser Lys His Asp Ser Ser Leu Gly Val Ile Gln Asn  
 325 330 335  
 Ser Ile Leu Asp Leu Lys Pro Thr Ser Pro Gln Asp Phe Ser Gln Thr  
 340 345 350  
 Lys Gln Thr Ile Cys Ile Tyr Arg Ala Leu Asn Ile Pro Arg Glu Val  
 355 360 365  
 Gln Glu Val Phe Cys Lys Val Thr Glu Leu Leu His Arg Gly Val Ser  
 370 375 380  
 Pro Glu Glu Ile Phe Ile Leu Ser Ser His Ile Glu Ser Tyr Lys Val  
 385 390 395 400  
 His Leu Asn Ala Ile Phe Asn Pro His Val Pro Ile Tyr Phe Thr Asp  
 405 410 415  
 Glu Val Asp Pro Arg Ala Glu Asp Leu Arg Asn Lys Asn Pro Pro Thr  
 420 425 430  
 Phe Phe Tyr Phe Thr Asn Thr Arg Gly Phe Thr Leu His Ser Ser Thr  
 435 440 445  
 Pro Tyr Ala Pro Thr Thr Thr Thr Thr Tyr Arg Ser Lys Gln Gly Ser  
 450 455 460  
 Leu Ser Asp  
 465

&lt;210&gt;1219

&lt;211&gt;81

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1219

Leu Glu Ala Pro Met Asn Glu Gly Ile His Ser Val Cys Phe Gln Lys  
 1 5 10 15  
 Thr Pro Arg Leu Thr Ala Lys Ser Val Val Ser Met Glu Met Leu Leu  
 20 25 30  
 Thr Thr Gln Gln Leu Pro Ser Ala Glu Gly Met Pro Ser Val Ala Asn  
 35 40 45  
 Leu Glu Ala Asp Phe Leu Arg Ala Glu Ala Leu Leu Ala Glu Met Arg  
 50 55 60  
 Glu Ile Arg Gly Cys Leu Glu Gln Ser Leu Arg Thr Leu Val Pro Ser  
 65 70 75 80  
 Glu

&lt;210&gt;1220

&lt;211&gt;95

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1220

Met Met Lys Tyr Leu Pro Tyr Ile Ala Ile Thr Ala Cys Ile His Gly  
 1 5 10 15  
 Gly Ile Leu Leu Leu Val Phe Ala Ser Pro Leu Pro Lys Lys Arg Leu  
 20 25 30  
 Gln Pro Lys Ala Phe Gln Glu Lys Leu Val Thr Ile Gln Pro Lys Pro  
 35 40 45  
 Pro Val Pro Thr Pro Ser Val Val Val Asp Pro Ala Lys Thr Ile Arg  
 50 55 60  
 Pro Ser Val Leu Arg Ser His Lys Asn Lys Leu Asn Ala Ala Leu Leu  
 65 70 75 80  
 Lys Arg Thr Ser Arg Arg Leu Tyr Lys Asn Pro Phe Gln Lys Leu  
 85 90 95

&lt;210&gt;1221

&lt;211&gt;96

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1221

Leu Asn Lys Phe Lys Thr Tyr Leu Gln Thr Ala Leu Ile Ala Pro Phe  
 1 5 10 15  
 Phe Ser Phe Pro Ala Leu Ser Gly Ser Phe Ser Ser Ile Gln Ala Glu

20 25 30  
 Glu Ile Xaa Gln Gln Val Asn His Pro Gly Ala Glu Leu Leu Ser Glu  
 35 40 45  
 Gly Ser Tyr Ile Pro Gly Leu Gln Thr Phe Arg Leu Gly Ile Lys Ile  
 50 55 60  
 Tyr Ser Phe Gln Arg Glu Pro Tyr Leu Leu Glu Glu Ser Arg Arg Asn  
 65 70 75 80  
 Trp Lys Ser Ser Gln Asn Phe Leu Ala Val Ala Glu Arg Phe Arg Gly  
 85 90 95

&lt;210&gt;1222

&lt;211&gt;76

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1222

Val Arg Ala Leu Phe Arg Ser Gly Tyr Lys Gly Arg Gln Gly Ile Tyr  
 1 5 10 15  
 Glu Phe Leu Arg Pro Asn Thr Leu Phe Arg Ser Glu Val Ala Ser Asn  
 20 25 30  
 Arg Pro Tyr His Ile Leu Arg Glu Thr Ala Glu Gln Asn Gly Phe Leu  
 35 40 45  
 Pro Ile Leu Glu His Gly Ile Ala Leu Ala Val Ser Gly Glu Thr Thr  
 50 55 60  
 Leu Ala Glu Val Leu Arg Val Thr Lys Arg Cys Asp  
 65 70 75

&lt;210&gt;1223

&lt;211&gt;185

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1223

Val Pro Thr Leu Ala Lys Ser Phe Tyr Ile Asn Ile Arg Asp Ser Arg  
 1 5 10 15  
 Phe Tyr Ser Trp Leu Cys Phe Ile Met Lys Glu Thr Tyr Tyr Arg Asp  
 20 25 30  
 Phe Leu His Glu Asn Tyr Leu Lys Asn Lys Lys Ser Met Phe Met Lys  
 35 40 45  
 Ile Tyr Lys Thr Ala Gly Glu Phe Phe Leu Ala Asn Ala Lys Trp Pro  
 50 55 60  
 Leu Val Pro Ala Gly Tyr Arg Arg Val Arg Gly Lys Asp Phe Val Leu  
 65 70 75 80  
 Ser Pro Leu Val Asp Leu Val Ile Leu Phe Pro Trp Val Thr Lys Asp  
 85 90 95  
 Ser Arg Tyr Ser Pro Cys Ser Met Thr Phe Thr Cys Ile Cys Arg Ser  
 100 105 110  
 Ile Val Glu Cys Ile Pro Val Val Ser Thr Leu Phe Gly Ile Gly Arg  
 115 120 125  
 Phe Cys Ala Val Trp Cys Val Glu Gly Phe Ser Gly Ser Thr Phe Asp  
 130 135 140  
 Lys Ile Tyr His Thr Ile Val Ala Val Leu Gly Ile Leu Gly Leu Gly  
 145 150 155 160  
 Ile Leu Thr Phe Ile Leu Arg Ile Ile Phe Ser Val Leu Met Leu Pro  
 165 170 175  
 Val Trp Phe Leu Phe Lys Cys Tyr Ser  
 180 185

&lt;210&gt;1224

&lt;211&gt;75

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1224

Met Trp Trp Asn Pro Ala Val Glu Asn Gln Ala Thr Asp Arg Val His  
 1 5 10 15  
 Arg Ile Gly Gln Ser Arg Ser Val Ser Ser Tyr Lys Leu Val Thr Leu  
 20 25 30  
 Asn Thr Ile Glu Glu Lys Ile Leu Thr Leu Gln Asn Arg Lys Xaa Ser  
 35 40 45

Leu Val Lys Lys Val Ile Asn Ser Asp Asp Glu Val Val Ser Lys Leu  
 50 55 60  
 Thr Trp Glu Glu Val Leu Glu Leu Leu Gln Ile  
 65 70 75

&lt;210&gt;1225

&lt;211&gt;122

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1225

Met Arg Asp Arg Leu Gly Ser Leu Ser Leu Ile Leu Lys Val Lys Ile  
 1 5 10 15  
 His Lys Tyr Leu Asp Thr Leu His Asn Gln Lys Arg Leu Ala Leu Thr  
 20 25 30  
 Val Ser Arg Asn Ile Gln Ala Thr Asn Lys Arg Ile Ala Asp Leu His  
 35 40 45  
 Leu Glu Arg Tyr Glu His Phe Ile Ser Arg Asp Asn Ile Lys His Tyr  
 50 55 60  
 Asp Ile Leu Leu Glu Tyr Leu Lys Thr Leu Gln Ser Ser Leu Tyr Lys  
 65 70 75 80  
 Gln Gln Ser Glu Ser Leu Arg Phe Leu Glu Ile His His Gln Gln Leu  
 85 90 95  
 Gln Glu Leu Ile Asn Arg Arg Lys Ile Ile Glu Lys Ile Lys Asn Asn  
 100 105 110  
 Lys Tyr Ser Lys Asp Gln Glu Ile Gly Thr  
 115 120

&lt;210&gt;1226

&lt;211&gt;178

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1226

Val Thr Thr Pro Gln Ser Pro Gly Ser Leu Ser Gln Ser His Leu Pro  
 1 5 10 15  
 His Pro His Asp Pro Trp Asp Thr Glu Pro Thr Ser Leu Xaa Glu Xaa  
 20 25 30  
 Pro Asn Asp Lys Ala Ser Gln Glu Leu His Ser Leu Val His Leu Phe  
 35 40 45  
 Arg Lys Leu Ser Ile His Leu Leu Ser Glu Val Glu Lys Thr Val Gln  
 50 55 60  
 Gln Leu Lys Pro Asp Leu Leu Glu Leu Ala Leu Ile Cys Glu Lys  
 65 70 75 80  
 Phe Leu Tyr Lys Lys Leu Glu Asn Pro Gln Glu Leu Ala Leu Leu Leu  
 85 90 95  
 Ser Thr Ala Leu Gln Arg His Thr Thr Leu Arg Ser Leu Thr Pro Ile  
 100 105 110  
 Lys Val Phe Leu His Pro Glu Asp Leu Lys Thr Leu Thr Asp Trp Ile  
 115 120 125  
 Ser Thr His Glu Leu Pro Met Ile Lys His Ala Glu Phe Phe Pro Asp  
 130 135 140  
 Thr Ser Cys Arg Arg Ser Gly Phe Lys Ile Glu Thr Pro Asn Gly Ile  
 145 150 155 160  
 Leu Arg Gln Glu Ile Ser Glu Glu Leu Asp His Leu Leu Ser Val Leu  
 165 170 175  
 Thr Ala

&lt;210&gt;1227

&lt;211&gt;161

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1227

Leu Leu Leu Arg Tyr His Ala Lys Ala Glu Lys Pro Thr Leu Gln Leu  
 1 5 10 15  
 Thr Leu Asn Glu Asn Tyr Ile Ala His Leu Thr Lys Glu Glu Ser Glu  
 20 25 30  
 Lys Ile Val Ala His Thr Lys His Tyr Leu Leu Ser Asn Xaa Asp Asp



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      35      40      45
Ser Tyr Asp Ile Val Ile Glu Thr Leu Pro Phe Ala Arg Leu Gln Asn
  50      55      60
Lys Lys Ser Phe Ser Ala Lys Val Leu Ile Gly Ser Met Ile Leu Val
  65      70      75      80
Ile Ser Leu Met Ile Val Ala Leu Ala Ser Phe Tyr Leu Ala Arg His
      85      90      95
Ala Tyr Glu Arg Val Ser Pro Glu Pro Arg Lys Ile Lys Arg Gly Ile
      100      105      110
Asn Ile Ser Lys Leu Leu Glu Ile Ile Gln Lys Glu Ser Pro Glu Lys
      115      120      125
Ile Ala Leu Ile Leu Ser Tyr Leu Asp Pro Lys Lys Ala Glu Ala Leu
      130      135      140
Leu Asn Arg Leu Pro Glu Asp Leu Lys His Gln Val Leu Lys Tyr Lys
  145      150      155      160
Leu

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&lt;210&gt;1228

&lt;211&gt;75

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1228

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Val Phe Phe Gln Asn Leu Ala Lys Lys Leu Thr Ala Leu Gly Ile Ser
  1      5      10      15
Pro Leu Gly Cys Leu Leu Ile Gly Gly Val Val Ser Cys Ala Ile Leu
      20      25      30
Phe Gly Arg Ser Ser Asn Pro Ser Leu Ala Pro Thr Gln Val Lys Thr
      35      40      45
Glu Lys Thr Ser Gly Asn Trp Leu Lys Leu Thr Gln Met Gly Asn Pro
      50      55      60
Lys Leu Ile Glu Ser Leu Thr Lys Lys Asp Ser
  65      70      75

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&lt;210&gt;1229

&lt;211&gt;100

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1229

```

Met Gly Tyr Val Phe Tyr Val Ile Ala Gly Ser Ile Phe Leu Gly Ile
  1      5      10      15
Ser Leu Gly Ala Tyr Cys Gln Leu Tyr Tyr Ser Val Lys Ser Val Leu
      20      25      30
Phe Ser Trp Tyr Leu Leu Thr Val Tyr Ala Leu Glu Lys Arg His Ala
      35      40      45
Leu Leu Ala Leu Ser Gln Leu Val Gly Glu Glu Asp Ala Gln Ser Gln
      50      55      60
Lys Glu Ile Asp Phe Leu Ser Gln Cys Asp Lys Leu Ser Trp Arg Ala
  65      70      75      80
Phe Leu Lys Asn Ser Tyr Glu Ile Ile Pro Thr Phe Gln Arg Asp Gly
      85      90      95
Arg Pro Ser Phe
      100

```

&lt;210&gt;1230

&lt;211&gt;103

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1230

```

Val Thr Ser Ser Leu Gly Val Arg Ser Ser Lys Ile Ala Thr Arg Ser
  1      5      10      15
Ser Gln His Phe Lys Glu Met Glu Asp Leu Leu Ser Glu Arg Val Gln
      20      25      30
Gly Phe Leu Glu Ser Ile Glu Thr Ile Ala Glu His Asp Arg Ala Ile
      35      40      45
Leu Cys Ile Glu Asn Phe Trp Ala Ser Lys Asn Leu Phe Asp Phe Glu
  50      55      60

```

Ile Ala Ala Tyr Glu Glu Ala Val Glu Lys Tyr Leu Lys Leu Arg Gln  
 65 70 75 80  
 Arg Ala Pro Leu Arg Leu Ala Ser Lys Leu Phe Arg Phe Leu Asp Val  
 85 90 95  
 Pro Ser Ile Arg Phe Ser Ser  
 100

&lt;210&gt;1231

&lt;211&gt;94

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1231

Ser Ile Ala Thr Gly Glu Thr Met Leu Tyr Phe Ile Glu Gln Leu Asn  
 1 5 10 15  
 Lys Leu Ser Thr Ser Phe Cys Val Phe Pro Met Ile Leu Leu Leu Gly  
 20 25 30  
 Gly Phe Leu Thr Trp Lys Leu Arg Gly Leu Gln Phe His Gly Leu Lys  
 35 40 45  
 Leu Gly Phe Asn Leu Met Leu Gln Asn Lys Leu Asp Asp Ser Ser Ser  
 50 55 60  
 Lys Ala Asn Glu Val Ser Ser Tyr Glu Ala Val Ala Gly Ile Leu Ala  
 65 70 75 80  
 Gly Asn Phe Gly Thr Gly Asn Ile Ala Gly Met Leu Ser Pro  
 85 90

&lt;210&gt;1232

&lt;211&gt;240

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1232

Val Pro Asn Arg His Val Asp Met Asn Ser Trp Trp Arg Ser Ala Cys  
 1 5 10 15  
 Tyr Pro Arg Ser Thr Phe Tyr Pro Leu Ser Asp Gly Asp Ser Thr Phe  
 20 25 30  
 His Arg Arg Ile Thr Lys Pro Asp Phe Arg Leu Cys Ser Thr Cys Lys  
 35 40 45  
 Ser Cys Ser Gln Pro Ile Leu Tyr Leu Tyr Ala Leu Leu Val Ile Ala  
 50 55 60  
 Asn His Asp Glu Ile Ser Phe Gly Leu Leu Arg Tyr Phe Leu Gly Gly  
 65 70 75 80  
 Tyr Arg Pro Ser Lys Thr Ala Arg Leu Ala Met Ser Ile Leu Gln Ile  
 85 90 95  
 His Gly Val Met Leu Asp Ser Gln Leu Val Lys Thr Ser Ile Ser Thr  
 100 105 110  
 Met Thr Pro Thr Leu Leu Thr Lys Ser Val His Ser Leu Leu Ala Ile  
 115 120 125  
 Leu His Ile Thr Asn Gln Lys Ser Ile Pro Lys Tyr Ser Lys Gly Ser  
 130 135 140  
 Arg Gly Leu Phe Val Leu Leu Arg Val Asn Ser Ile Phe Thr Ala Thr  
 145 150 155 160  
 Thr Ile Ser Pro Ser Leu Ser Leu Arg Gln Cys Pro Asp Arg Tyr Thr  
 165 170 175  
 Ile Arg Ala Gly Arg Asn Leu Pro Asp Lys Glu Phe Arg Tyr Leu Ser  
 180 185 190  
 Thr Val Ile Val Thr Ala Ala Ile His Gln Gly Leu Gly Ser Met Leu  
 195 200 205  
 Ser Leu Arg Leu Thr Tyr Pro Phe Asn Leu Leu Ala Leu Gly Arg Arg  
 210 215 220  
 His Thr Ile Tyr Phe Pro Leu Glu Val Cys Ile Val Leu Cys Phe Cys  
 225 230 235 240

&lt;210&gt;1233

&lt;211&gt;133

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1233

Leu Asn Phe Val Ser Thr Leu Thr Gly Ser Asp Phe Tyr Ala Pro Val

1 5 10 15  
 Leu Glu Lys Leu Glu Glu Ala Phe Ala Asp Thr Thr Gly Gln Ala Ile  
 20 25 30  
 Leu Phe Ser Ser Ser Pro Asp Phe Ile Val His Pro Ile Ala Gln Gln  
 35 40 45  
 Leu Gly Ile Ser Ser Trp Tyr Ala Ser Cys Tyr Arg Asp Gln Ser Ala  
 50 55 60  
 Glu Gln Thr Ile Tyr Lys Lys Cys Leu Thr Gly Asp Lys Lys Ala Gln  
 65 70 75 80  
 Ile Leu Ser Tyr Ile Lys Lys Ile Asn Gln Ala Arg Ser His Thr Phe  
 85 90 95  
 Ser Asp His Ile Leu Asp Leu Pro Phe Leu Met Leu Gly Glu Glu Lys  
 100 105 110  
 Thr Val Val Arg Pro Gln Gly Arg Leu Lys Lys Met Ala Lys Lys Tyr  
 115 120 125  
 Tyr Trp Asn Ile Val  
 130

&lt;210&gt;1234

&lt;211&gt;118

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1234

Val Ile Leu Leu Gln Asn Ile Lys Arg Cys Ser Leu Lys Gln Leu Lys  
 1 5 10 15  
 Val Leu Ala Thr Leu Leu Leu Ser Leu Ser Leu Pro Thr Leu Glu Ala  
 20 25 30  
 Ala Glu Asn Arg Asp Ser Asp Ser Ile Val Trp His Leu Asp Tyr Gln  
 35 40 45  
 Glu Ala Leu Gln Lys Ser Lys Glu Ala Glu Leu Pro Leu Leu Val Ile  
 50 55 60  
 Phe Ser Gly Ser Asp Trp Asn Gly Pro Cys Met Lys Ile Arg Lys Glu  
 65 70 75 80  
 Val Leu Glu Ser Pro Glu Phe Ile Lys Arg Val Gln Gly Lys Phe Val  
 85 90 95  
 Cys Val Glu Val Glu Tyr Leu Lys His Arg Pro Gln Leu Lys Thr Phe  
 100 105 110  
 Val Ser Lys Ile Leu Leu  
 115

&lt;210&gt;1235

&lt;211&gt;87

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1235

Met Lys Ser Phe Lys Phe Leu Leu Pro Phe Leu Ser Val Ile Leu Cys  
 1 5 10 15  
 Cys Gly Asn Leu Leu Ser Ser Pro Arg Ser Arg Ala Ile Ser Val Thr  
 20 25 30  
 Glu Ser Ile Gly Met Ser Ala Val Lys Thr Leu Val Leu Ser Glu Lys  
 35 40 45  
 Ala His Glu Phe Leu Glu Gly Ile Gly Tyr Gly Val Gly Ala Ser Ser  
 50 55 60  
 Ile Leu Arg Asp Trp Gln Thr Gln Gln Trp Leu Glu Ile Glu Ser Leu  
 65 70 75 80  
 Leu Ala Gln Asn Glu Val Met  
 85

&lt;210&gt;1236

&lt;211&gt;141

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1236

Met Gln Tyr Phe Ser Pro Ala Lys Leu Asn Leu Phe Leu Lys Ile Trp  
 1 5 10 15  
 Gly Lys Arg Phe Asp Asn Phe His Glu Leu Thr Thr Leu Tyr Gln Ala  
 20 25 30

Ile Asp Phe Gly Asp Thr Leu Ser Leu Lys Asn Ser Met Lys Asp Ser  
 35 40 45  
 Leu Ser Ser Asn Val Asn Glu Leu Leu Ser Pro Ser Asn Leu Ile Trp  
 50 55 60  
 Lys Ser Leu Glu Ile Phe Arg Arg Glu Thr Gln Ile His Gln Pro Val  
 65 70 75 80  
 Ser Trp His Leu Asn Lys Ser Ile Pro Leu Gln Ser Gly Leu Gly Gly  
 85 90 95  
 Gly Ser Ser Asn Ala Ala Thr Ala Leu Tyr Ala Leu Asn Glu His Phe  
 100 105 110  
 Gln Thr His Ile Pro Ile Thr Thr Leu Gln Leu Trp Ala Arg Glu Ile  
 115 120 125  
 Gly Ser Asp Val Pro Phe Phe Phe Leu Gln Glu Gln His  
 130 135 140

&lt;210&gt;1237

&lt;211&gt;174

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1237

Leu Gly Ser Arg Asn Arg Lys Arg Cys Ser Phe Phe Phe Ser Ser Gly  
 1 5 10 15  
 Thr Ala Leu Gly Lys Gly Arg Gly Glu His Leu Phe Ser Ile Lys Lys  
 20 25 30  
 Leu Asn His Lys His Lys Tyr Val Leu Tyr Leu Asp His Gln Gly Ile  
 35 40 45  
 Pro Thr Glu Lys Ala Tyr Gln Ser Leu Leu Pro Gln Asp Tyr Ser Thr  
 50 55 60  
 Gly Asn His Asn Ala Cys Phe Tyr Gly Glu Asn Asp Leu Glu Lys Ser  
 65 70 75 80  
 Val Phe Arg Ile Arg Thr Asp Leu Lys Asn Lys Lys His Met Leu Glu  
 85 90 95  
 Arg Met Trp Ser Pro Phe Glu Ser His Val Leu Met Ser Gly Ser Gly  
 100 105 110  
 Ala Thr Leu Phe Val Cys Tyr Leu Glu Glu Leu Glu Gln Asp Ser Lys  
 115 120 125  
 Val Ser Ser Gln Ile His Ser Leu Ile Lys Gln Thr Gln Gly Ile Pro  
 130 135 140  
 Val Ser Arg Leu Tyr Arg Glu Pro His Trp Tyr Ser Leu Lys Gln Ser  
 145 150 155 160  
 Thr Tyr Lys Asn Ser Pro Leu Glu Cys Phe Gln Pro Gln Ile  
 165 170

&lt;210&gt;1238

&lt;211&gt;106

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1238

Met Gly Leu Tyr Asp Arg Asp Tyr Ile Gln Asp Ser Arg Val Gln Gly  
 1 5 10 15  
 Thr Phe Ala Ser Arg Val Tyr Gly Trp Met Thr Ala Gly Leu Ile Val  
 20 25 30  
 Thr Ser Cys Val Ala Leu Gly Leu Tyr Phe Ser Gly Leu Tyr Arg Ser  
 35 40 45  
 Leu Phe Ser Phe Trp Trp Val Trp Cys Phe Ala Thr Leu Gly Val Ser  
 50 55 60  
 Phe Phe Ile Asn Ser Lys Ile Gln Thr Leu Ser Val Val Gly Gln Val  
 65 70 75 80  
 Met Ala Tyr Ala Met Val Leu Ala Lys Gly Met Glu Ile Asp Cys Pro  
 85 90 95  
 Arg Asn Leu Ala Lys Ser Val Thr Val Glu  
 100 105

&lt;210&gt;1239

&lt;211&gt;217

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1239

```

Met Ser Asn Lys Val Leu Gly Gly Ser Leu Leu Ile Ala Gly Ser Ala
 1           5           10           15
Ile Gly Ala Gly Val Leu Ala Val Pro Val Leu Thr Ala Lys Gly Gly
          20           25           30
Phe Phe Pro Ala Thr Phe Leu Tyr Ile Val Ser Trp Leu Phe Ser Met
          35           40           45
Ala Ser Gly Leu Cys Leu Leu Glu Val Met Thr Trp Met Lys Glu Ser
          50           55           60
Lys Asn Pro Val Asn Met Leu Ser Met Ala Glu Ser Ile Leu Gly His
          65           70           75           80
Val Gly Lys Ile Ser Ile Cys Leu Val Tyr Leu Phe Leu Phe Tyr Ser
          85           90           95
Leu Leu Ile Ala Tyr Phe Cys Glu Gly Gly Asn Ile Leu Cys Arg Val
          100          105          110
Phe Asn Cys Gln Asn Leu Gly Ile Ser Trp Ile Xaa Xaa Leu Gly Pro
          115          120          125
Leu Gly Phe Ala Ile Leu Met Gly Pro Ile Ile Xaa Xaa Gly Thr Xaa
          130          135          140
Xaa Ile Asp Tyr Cys Xaa Xaa Phe Phe Xaa Xaa Gly Leu Xaa Val Xaa
          145          150          155          160
Phe Gly Ile Xaa Xaa Ala Leu Gly Phe Leu Lys Ile Gln Pro Ser Phe
          165          170          175
Met Val Arg Ser Ser Met Val Asn Tyr Asn Lys Arg Ile Ser Cys Val
          180          185          190
Phe Ser Leu Leu Phe Gly Phe Gln Ser Xaa Ile Pro Thr Leu Tyr Tyr
          195          200          205
Tyr Met Asp Lys Lys Ser Trp Arg Cys
          210          215

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&lt;210&gt;1240

&lt;211&gt;115

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1240

```

Leu Val Ser Ser Phe Val Gly Val Ala Leu Gly Val Met Asp Phe Leu
 1           5           10           15
Ala Asp Gly Leu Lys Trp Asn Lys Lys Ser His Pro Phe Ser Ile Phe
          20           25           30
Phe Leu Thr Phe Ile Ile Pro Leu Ala Trp Ala Val Cys Tyr Pro Glu
          35           40           45
Ile Val Leu Thr Cys Leu Lys Tyr Ala Gly Gly Phe Gly Ala Ala Val
          50           55           60
Ile Ile Gly Val Phe Pro Thr Leu Ile Val Trp Lys Gly Arg Tyr Gly
          65           70           75           80
Lys Gln His His Arg Glu Lys Gln Leu Val Pro Gly Gly Lys Phe Ala
          85           90           95
Leu Phe Leu Met Phe Leu Leu Ile Val Ile Asn Val Val Ser Ile Tyr
          100          105          110
His Glu Leu
          115

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&lt;210&gt;1241

&lt;211&gt;105

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1241

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Leu Phe Pro Leu Val Leu Leu Ala Trp Val Ile Arg Tyr Gln Leu His
 1           5           10           15
Ala Asn Phe His Cys Ser Val Val Pro Phe Pro Gly Phe Ser Val Asn
          20           25           30
Gln Ala Tyr Lys Cys Ser Glu Ala Lys Ile Glu Glu Met Leu Asp Leu
          35           40           45
Leu Asp Leu Glu Thr Leu Glu Trp Ser Ser Arg Cys Leu Arg Gln Asp
          50           55           60
Met Thr Phe Ala Asn Arg Leu Glu Glu Glu Leu Ile Gln Glu Leu Arg

```

65 70 75 80  
 Val Ser Glu Thr Glu Glu Leu Ile Ser Leu Gly Gly Lys Arg Asn Leu  
 85 90 95  
 Val Arg Leu Leu Leu Thr His Ser Phe  
 100 105

&lt;210&gt;1242

&lt;211&gt;158

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1242

Met Arg Val Ile Phe Pro Asp Lys His Asn Asn Phe Pro Asn Leu Ser  
 1 5 10 15  
 Lys Leu Leu Lys Lys Leu Pro Ser Val Ile Leu Val Thr Ser Cys Ile  
 20 25 30  
 Ala Pro Phe Phe Ser Tyr Ile Ile Asn Lys Phe Phe Gly Ile Pro Gly  
 35 40 45  
 Leu Leu Glu Ile Leu Ala Leu Ser Val Lys Gly Ile Gln Lys His His  
 50 55 60  
 Phe Trp Gln Phe Leu Thr Tyr Pro Leu Ile Thr Ala Asp Ser Leu Ser  
 65 70 75 80  
 Leu Asn Lys Asp Gln Ser Phe Glu Ile Thr Gln Arg Leu Leu Leu Arg  
 85 90 95  
 Asn Val Leu Asp Phe Phe Leu Phe Tyr Lys Ala Ile Gln His Leu Ile  
 100 105 110  
 Arg Lys Leu Gly Ala Phe Ser Val Leu Val Val Ile Ser Gly Gln Ala  
 115 120 125  
 Leu Ile Ile Gly Ala Val Leu Trp Gly Phe Met Ala Leu Ile Thr Ala  
 130 135 140  
 Pro Asn Leu Ser Ser Val Arg Lys Val Leu Ser Val Val Phe  
 145 150 155

&lt;210&gt;1243

&lt;211&gt;135

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1243

Met Arg Leu Lys Asn Tyr Pro Met Ile Gln Phe Ser Phe Phe Leu Pro  
 1 5 10 15  
 Gln Thr Cys Ile Leu Leu Leu Ala Ser Asp Ser Leu Thr Asn Ile Leu  
 20 25 30  
 Ala Leu His His Leu Leu Ala Asn Tyr Ser Val Lys Gln Arg Met Leu  
 35 40 45  
 Val Leu Leu Arg Glu Ser Phe Phe Ala Phe Ile Ala Met Phe Ala Leu  
 50 55 60  
 Tyr Gly Leu Ala Leu Gly Gly Leu Lys Val Leu Asn Thr Pro Val Cys  
 65 70 75 80  
 Ala Ile Glu Val Val Gly Gly Ile Ala Val Thr Leu Ala Gly Val Arg  
 85 90 95  
 Ala Val Leu Arg Leu Gly Lys Glu Glu Ser Trp Ile Pro Tyr Lys Phe  
 100 105 110  
 Asn Met Ser Pro Ser Tyr Ser Pro Cys Ile Ser Pro Ile Ala Leu Pro  
 115 120 125  
 Leu Met Phe Gly Pro Ser Gly  
 130 135

&lt;210&gt;1244

&lt;211&gt;160

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1244

Met Lys Lys Lys Phe Ile Phe Tyr Phe Val Ile Val Phe Ser Leu Leu  
 1 5 10 15  
 Phe Leu Trp Glu Met Thr Ser Arg His Arg Pro Thr Phe Ser Phe Phe  
 20 25 30  
 Cys Pro Pro Pro Ser Ser Ile Ala Ser Ser Thr Leu Gln Ser Leu Pro  
 35 40 45

Leu Leu Leu Thr Ser Ala Trp His Thr Leu Lys Ala Ile Leu Gly Gly  
 50 55 60  
 Phe Phe Leu Ala Ile Thr Leu Ser Ile Val Leu Ala Thr Ile Met Leu  
 65 70 75 80  
 Ser Tyr Lys Ser Ala Lys Asp Leu Leu Gln Pro Leu Phe Ile Leu Leu  
 85 90 95  
 Gln Cys Thr Pro Met Phe Ala Leu Ala Pro Leu Ile Val Leu Trp Phe  
 100 105 110  
 Gly Trp Gly Ile Gly Ala Val Ile Val Pro Thr Ala Leu Thr Ile Phe  
 115 120 125  
 Phe Pro Leu Thr Leu Thr Ile Tyr Gln Gly Ile Leu Ser Thr Pro Glu  
 130 135 140  
 Glu Leu Ile Glu Gln Phe Val Leu Cys Gly Val Gln Asn Ser Asn Ser  
 145 150 155 160

&lt;210&gt;1245

&lt;211&gt;227

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1245

Met Leu Trp Gly Val Ser Met Arg Gln Ser Phe Asp Glu Leu Ser Gln  
 1 5 10 15  
 Asn Ala Phe Lys Asn Ile Phe Asn Lys Gln Arg Phe Cys Phe Ile Phe  
 20 25 30  
 Cys Ser Leu Cys Cys Phe Gly Phe Val Phe Ala Leu Phe Leu Lys Leu  
 35 40 45  
 Cys Ser Arg Leu Ala Pro Glu Ile Ser Leu Ser Thr Leu Gly Leu Gly  
 50 55 60  
 Ala Phe Phe Cys Ala Phe Ser Val Ile Cys Ala Ser Ala Ile Ile Val  
 65 70 75 80  
 Gln Phe Leu Leu His Lys Glu Ser Gln Gly Glu Thr Ser Lys Leu Cys  
 85 90 95  
 Cys Ala Ile Lys Asn Thr Trp Ser Ser Leu Trp Leu Ser Leu Leu Val  
 100 105 110  
 Ser Met Pro Phe Phe Ile Ala Met Val Ala Val Val Thr Val Ala Met  
 115 120 125  
 Leu Ser Ser Phe Leu Gly Ser Leu Pro Trp Val Gly Lys Leu Phe His  
 130 135 140  
 Thr Val Leu Ile Phe Ile Pro Tyr Leu Ser Ala Thr Ala Leu Ile Leu  
 145 150 155 160  
 Leu Phe Leu Gly Ser Phe Ser Cys Leu Phe Phe Cys Ile Pro Val Leu  
 165 170 175  
 His Asn Gln Glu Ser Ile Asp Tyr Arg Lys Leu Pro Arg Val Phe Ser  
 180 185 190  
 Trp Glu Tyr Pro Ser Ala Val Tyr Arg Gly Gly Asp Cys Phe Gly Ser  
 195 200 205  
 Xaa Ser Pro Met Gln Leu Val Ser Phe Arg Phe Phe Leu Phe Asp Asp  
 210 215 220

Thr Ser Cys

225

&lt;210&gt;1246

&lt;211&gt;78

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1246

Val Val Ile Ala Leu Val Pro Leu Ala Leu Cys Ser Trp Leu Ala Leu  
 1 5 10 15  
 Asp Ser Phe Tyr Leu Met Thr His Leu Val Glu Ile Ala Asp Ile His  
 20 25 30  
 Thr Trp Ser Phe Leu Ala Gln Met Phe Val Leu Ile Val Pro Ile Ala  
 35 40 45  
 Leu Ile Leu Thr Pro Ala Val Ser Phe Phe Phe Asn Phe Ser Phe Ser  
 50 55 60  
 Phe Tyr Leu Ala Lys Gln Glu Glu Glu Lys Ala Leu Val Lys  
 65 70 75

&lt;210&gt;1247

&lt;211&gt;94

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1247

Leu Arg Ala Phe Phe Pro Val Lys Ala Trp Arg Ser Pro Glu Asp Ile  
 1 5 10 15  
 Pro Glu Ala Pro Ser Pro Lys Gly Ile Gly Ser Lys Arg Ser Ile Val  
 20 25 30  
 Ala Val Pro Trp Glu Trp Arg Ser Arg Cys Gln Val Thr Glu Ser Pro  
 35 40 45  
 Ala Tyr Pro Ala Pro Lys Thr Ala Ile Arg Ile Lys Cys Thr Leu Asn  
 50 55 60  
 Gln Val Ser Leu His Arg Pro Cys Leu Glu Asn Lys Arg Ile Arg Asp  
 65 70 75 80  
 Lys Arg Thr Gly Gly Asn Leu Ser Asp Trp Glu Ile Lys Met  
 85 90

&lt;210&gt;1248

&lt;211&gt;86

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1248

Met Arg Ile Ala Val Leu Gly Ala Gly Tyr Ala Gly Leu Ser Val Thr  
 1 5 10 15  
 Trp His Leu Leu Leu His Ser Gln Gly Thr Ala Thr Ile Asp Leu Phe  
 20 25 30  
 Asp Pro Ile Pro Leu Gly Glu Gly Ala Ser Gly Met Ser Ser Gly Leu  
 35 40 45  
 Leu His Ala Phe Thr Gly Lys Lys Ala Leu Lys Pro Pro Leu Val Gly  
 50 55 60  
 Ser Arg Asn Gln Cys Tyr Thr Arg Val Asn His Xaa Ala Leu Val Lys  
 65 70 75 80  
 Pro Ser Thr Tyr Leu Leu  
 85

&lt;210&gt;1249

&lt;211&gt;232

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1249

Leu Pro Met Asn Thr Ser His Arg Lys Thr Leu Val Phe Ser Tyr Leu  
 1 5 10 15  
 Ser Ser Thr Phe Thr Leu Leu Leu Val Leu Ser Asn Leu Val Leu Ser  
 20 25 30  
 Ser Lys Leu Ile Pro Thr Thr Phe Phe Asn Phe Ile Ile Pro Gly Gly  
 35 40 45  
 Leu Ile Leu Tyr Pro Leu Thr Phe Leu Ile Ser Asp Val Val Asn Glu  
 50 55 60  
 Ile Phe Gly Pro Lys Lys Ala Arg Val Met Ile Phe Ser Ala Phe Ile  
 65 70 75 80  
 Ala Asn Leu Leu Ala Ser Ser Ile Val Gln Ile Phe Met Phe Phe Pro  
 85 90 95  
 Val Ala Ser Pro Glu Met Gln Thr Ala Trp His Cys Leu Phe Asp Leu  
 100 105 110  
 Ser Pro Leu Arg Phe Leu Ala Ser Leu Leu Ala Phe Ile Val Ser Gln  
 115 120 125  
 Gln Leu Asp Ile Val Leu Tyr Thr Phe Phe Lys Asn Arg Thr Pro Asn  
 130 135 140  
 Ser Ser Leu Trp Leu Arg Ser Asn Gly Ser Thr Trp Ile Ser Gln Xaa  
 145 150 155 160  
 Pro Asp Thr Phe Ile Val Asp Thr Cys Ile Leu Tyr Phe Gly Met Gly  
 165 170 175  
 Leu Ser Phe Pro Gln Thr Leu Asn Ile Met Phe Tyr Ser Tyr Ile Tyr  
 180 185 190  
 Lys Ile Thr Phe Cys Val Leu Thr Thr Pro Leu Phe Tyr Leu Ala Val



195 200 205  
 Asn Thr Ile Arg Lys Phe Leu Gly Met Pro Ser Thr Lys Ile Ala Asn  
 210 215 220  
 Thr Val Pro Leu Ile Asn Gln Pro  
 225 230  
 <210>1250  
 <211>103  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1250  
 Met Thr Pro Lys Ser Ile Gln Gln Leu His Leu Ile Lys Thr Ile Asp  
 1 5 10 15  
 Pro Val Arg Lys Ile Ser Pro Val Thr Thr Lys Lys Ser Ser Phe Phe  
 20 25 30  
 Arg Gln Ser Leu Leu Arg Phe Leu Glu Leu Phe Trp Met Phe Leu Tyr  
 35 40 45  
 Cys Ile Arg Ser Ile Arg Phe His Cys Val His Ile Ala Thr Phe Ile  
 50 55 60  
 Cys Arg Gly Leu Ile Leu Phe Leu Thr Thr Leu Phe Leu Ser Met Ile  
 65 70 75 80  
 Cys Ile Leu His Phe Ile Thr Leu Pro Trp Ile Cys Lys Glu Asp Pro  
 85 90 95  
 Arg Ile Ile Arg Lys Asn Lys  
 100  
 <210>1251  
 <211>79  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1251  
 Leu Asn Phe Ala Lys Ile Asp His Asn His Leu Tyr Leu Thr Cys Leu  
 1 5 10 15  
 Gly Asp Leu Gly Val Ala Cys Pro Ile Leu Ser Thr Asp Cys Leu Pro  
 20 25 30  
 Asn Tyr Ser Glu Lys Ala Ser His Glu Val Leu Val Tyr Ser Lys Phe  
 35 40 45  
 Arg Cys Ile Ser Gly Glu Pro Ser Arg Leu Ala Thr Ser Gly Asn Asp  
 50 55 60  
 Thr Tyr Tyr Ser Ile Val Ser Leu Pro Ile Gly Leu Arg Tyr Glu  
 65 70 75  
 <210>1252  
 <211>85  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1252  
 Met Val Glu Ile His His Lys Asp Pro Ser Leu Lys Lys Leu Phe Ala  
 1 5 10 15  
 Leu Gln Gln Ser Leu Glu Thr Leu Asn Ser Leu Ser Asp Ile Val Ala  
 20 25 30  
 Thr Tyr Glu Ala Met Phe Ser Leu Ile Tyr Glu Gly Leu Asn Lys Ala  
 35 40 45  
 Leu Arg Lys Asp Gln Leu Cys Tyr Leu Leu Ser Val Asn Ser Lys Gly  
 50 55 60  
 Glu Leu Leu Lys Ser Pro Ser Gly Asp Pro Ile Val Gln Thr Phe Pro  
 65 70 75 80  
 Ile His Pro His His  
 85  
 <210>1253  
 <211>75  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1253  
 Met Glu Glu Val Pro Phe Glu Asn Ala Met Gln Arg Leu Glu Glu Ile  
 1 5 10 15  
 Val Asp Leu Met Asn Gln Pro Thr Thr Ser Leu Asp Ala Ser Leu Ala

20 25 30  
 Leu Tyr Glu Glu Ala Asp Ala Leu Met Arg Ile Cys Glu Ser Arg Ile  
 35 40 45  
 Arg Gln Val Glu Gln Arg Val Arg Glu Leu Ala Glu Lys Arg His Glu  
 50 55 60  
 Ser Ser Leu Phe Glu Glu Gln Ala Val Val Arg  
 65 70 75

&lt;210&gt;1254

&lt;211&gt;126

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1254

Met Tyr Ile Ser Ser Ser Phe Ser Ser Ser Ala Lys Val Ser Ala Ile  
 1 5 10 15  
 Cys Leu Ala Ser Ile Cys Ser Lys Val Ser Ser Arg Phe Leu Ser Asn  
 20 25 30  
 Asn Ile Asn Pro Lys Thr Asn Arg Thr Thr Pro Arg Glu Ile Val Leu  
 35 40 45  
 Ile Pro Asn Pro Gln Thr Met Ser Ala Leu Asn Pro Glu Ile Thr Pro  
 50 55 60  
 Leu Ser Thr Ile Ala Pro Gln Thr Thr Arg Arg Met Pro Thr Thr Asn  
 65 70 75 80  
 Lys Val Ile Pro Arg Ala Arg Asp Leu Leu Ser Leu Gly Ile Thr Asn  
 85 90 95  
 Phe Val Ser Ser Gly Gly Val Gly Asp Thr Cys Arg Ile Ala Gly Ala  
 100 105 110  
 Ala Val Met Ile Glu Tyr Gln Asn His Lys Arg Asn Ile Asp  
 115 120 125

&lt;210&gt;1255

&lt;211&gt;81

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1255

Met Glu Ser Lys Lys Val Ser Lys Leu Ala Ser Asn Ser Thr Phe Phe  
 1 5 10 15  
 Leu Ala Ser Val Ser Cys Leu Gly Ser Thr Val Pro Pro Tyr Arg Ala  
 20 25 30  
 Leu Arg Ser Leu Thr Arg Val Ser Thr Ser Ser Cys Phe Phe Arg Lys  
 35 40 45  
 Asn Phe Val Leu Ala Ser Ser Arg Arg Ser Thr Lys Ser Asp Lys Ser  
 50 55 60  
 Phe Leu Phe Ala Ser Val Asp Ser Phe Glu Leu Ser Ser Arg Ser Phe  
 65 70 75 80  
 Ser

&lt;210&gt;1256

&lt;211&gt;80

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1256

Leu Leu Gly Met Cys Thr Leu Leu Leu Ile Pro Lys Gln Leu Arg Leu  
 1 5 10 15  
 Leu Ile Leu Thr Lys Cys Leu Ser Ile Thr Leu Ser His Thr Leu Ile  
 20 25 30  
 His Thr Arg Leu Gln Gly Ser Lys Cys Leu Phe Lys Gly Arg Leu Arg  
 35 40 45  
 His Thr Ile Asn Met Pro Ile Lys Ser His Gly Tyr Leu Pro Tyr Val  
 50 55 60  
 Thr Ser Arg Ser His Lys Ala Ile His Asn Leu Thr Ser Arg Phe Leu  
 65 70 75 80

&lt;210&gt;1257

&lt;211&gt;87

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1257

Gly Ser Thr Phe Ala Asn Leu Ser Leu His Leu Leu Tyr Cys Thr Lys  
 1 5 10 15  
 Ala Leu Val Asn Ala Cys Phe Ile Gly Trp Ser Gly Arg Ser Ala Ile  
 20 25 30  
 Arg Ser Ile Ile Ser Ile Ser Ser Thr Arg Gly Arg Val Ser Ser Ile  
 35 40 45  
 Ser Ser His Lys Thr Leu Arg Arg Phe Ala Ala Ser Glu Ser Met Val  
 50 55 60  
 Tyr Ser Ile Ser Ser Val Ala Ser Leu Ser Thr Pro Lys Ala Lys Val  
 65 70 75 80  
 Ser Ala Phe Asp Asn Leu Leu  
 85

&lt;210&gt;1258

&lt;211&gt;81

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1258

Met His Pro His Ser Lys Cys Arg Phe Leu Gly Phe Ser Cys Phe Lys  
 1 5 10 15  
 Lys Leu Ser Ile Ala Gly Thr Asn Val Leu Leu Ile Lys Glu Asp Phe  
 20 25 30  
 Pro Asp Pro Glu Thr Pro Val Thr Pro Ile Ser Arg Ala Asn Gly Arg  
 35 40 45  
 Arg Ile Glu Arg Phe Leu Arg Leu Trp Ile Val Ala Ser Val Ser Lys  
 50 55 60  
 Ser Gln Asp Val Gly Ala Ser Arg Asp Ser Gly Met Gly Met Val Ser  
 65 70 75 80  
 Ser

&lt;210&gt;1259

&lt;211&gt;107

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1259

Met Ile Ala Pro Ser Leu Pro Ala Leu Leu Ala Ile Cys Phe Asn Gly  
 1 5 10 15  
 Ala Val Asn Ala Phe Arg Ile Ile Arg Val Pro Ile Ala Ser Ser Ser  
 20 25 30  
 Phe Ala Ser Ile Gly Arg Lys Ala Ser Ser Val Gly Ile Gln Arg Thr  
 35 40 45  
 Lys Ala Val Pro Pro Pro Gly Arg Ile Pro Ser Ser Thr Ala Ala Met  
 50 55 60  
 Val Ala Cys Cys Ala Ser Ser Thr Leu Ser Phe Phe Ser Phe Ile Ser  
 65 70 75 80  
 Ile Ser Val Ala Ala Pro Thr Arg Ile Thr Ala Thr Pro Pro Glu Ser  
 85 90 95  
 Leu Ala Lys Arg Ser Trp Ser Phe Ser Leu Ser  
 100 105

&lt;210&gt;1260

&lt;211&gt;76

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1260

Leu Pro Pro Ala Leu Gln Val Leu Tyr Met Lys Ser Leu Asp Asn Ala  
 1 5 10 15  
 Asn Leu Glu Ile Leu His Lys Ile Phe Gln Val Gln Val Glu Ala Asn  
 20 25 30  
 Glu Leu Pro Leu Gln Met Leu His Glu Thr Thr Pro Lys Ala Leu Leu  
 35 40 45  
 Gln Gly His Ala Ala Phe Ser Asp Gln Asn Glu Leu Leu Glu Ile Ser  
 50 55 60  
 Tyr Thr Tyr His Lys Leu Thr Ser Tyr Lys Glu Ala  
 65 70 75

&lt;210&gt;1261

&lt;211&gt;76

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1261

```

Met Cys Asn Arg Cys Lys Asp Ser Ser Thr Ser Leu Val Phe Ser Thr
  1             5             10             15
Cys Leu Gly Thr His Lys Thr Glu Thr Pro Ser Phe Ile Asn Phe Cys
             20             25             30
Thr Thr Gly Ser His Phe Pro Ala Ser Leu Leu Cys Ile Glu Pro Arg
             35             40             45
Ile Thr Asn Phe Glu Ser Val Gly Asn Leu Lys Arg Ser Leu Gln Val
             50             55             60
Ser Leu Ser Lys Cys Ser Ala Val Cys Ala Ala Thr
  65             70             75

```

&lt;210&gt;1262

&lt;211&gt;80

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1262

```

Met Leu Asn His Gln Gln His Lys Val Val Ser Ile Ser Gln Phe His
  1             5             10             15
Gln Gln Arg Gln Leu Val His Lys Lys Asn Trp Arg Arg Gly Ser Thr
             20             25             30
Thr His Lys Glu Cys Ala Thr Asp Ala Lys Ile Leu Gln His Pro Trp
             35             40             45
Ser Phe Gln Arg Val Leu Ala Pro Ile Lys Leu Arg Pro Pro Leu Leu
             50             55             60
Leu Ile Ser Ala Leu Gln Glu Ala Ile Phe Leu His His Phe Tyr Ala
  65             70             75             80

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&lt;210&gt;1263

&lt;211&gt;112

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1263

```

Met Ile Arg Leu Trp Ser Cys Ser Ser Ile Lys Ile Glu Thr Val Pro
  1             5             10             15
Tyr Ser Lys Glu Ile Ala Tyr Cys Arg Trp Tyr Ser Asn Thr Thr Leu
             20             25             30
Ser Tyr Trp Ile Leu Ile Arg Glu Lys Cys Arg Pro Thr Lys Lys Ser
             35             40             45
Ala Ser Ser Arg Phe Leu Thr Lys Asn Asn Asn Ile Val His His Met
             50             55             60
Ser Ser Gln Lys Leu Phe Ala Phe Gln Ala Lys Ile Phe Val Ala Phe
             65             70             75             80
Phe Phe Gln Lys Asn Ile Phe Tyr Gln Phe Phe Phe Phe Arg Met Thr
             85             90             95
Cys Lys Val Lys Arg Ser Ile Phe Gln Glu Glu Phe Cys Arg Pro Ile
             100             105             110

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&lt;210&gt;1264

&lt;211&gt;148

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1264

```

Ser Gly Arg Ile Ile Ser Val Met Leu Ser Ala Pro Pro Cys Glu Leu
  1             5             10             15
His Ser Asp Leu Ile Asp Pro Asp Leu Phe Glu Phe Asn His Arg Leu
             20             25             30
Asn Ile Cys Ile Ser Ala Glu Val Arg Gly Arg Val Thr Thr His Thr
             35             40             45
Phe Arg Gly Asp Ser Cys Asn Met Ser Phe Asn Cys Ser Val Arg Gly
             50             55             60
Asn Val Ile Thr Ile Pro Arg Ile Ile Arg Ile Glu Ile Arg Ser Leu
  65             70             75             80

```

Thr Ser Ser Phe Ser Ile Ile Thr Lys Cys Lys Arg Ile Ser Ser Arg  
                     85                    90                    95  
 Leu Arg Ile Thr Asn Ile Ile Ala Tyr Trp Ser Leu Arg Tyr Val Cys  
                     100                    105                    110  
 Leu Arg Ile Asp Ile Lys Thr Val Arg Glu Cys Ser Ser Ile Lys Leu  
                     115                    120                    125  
 Arg Thr Phe Arg Arg His Ile Thr Leu His Asn Lys Phe Thr Trp Arg  
                     130                    135                    140  
 Ser Arg Gly Ile  
 145

&lt;210&gt;1265

&lt;211&gt;130

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1265

Ser Phe Phe Ser Phe Arg Lys Val Pro Asn Phe Ser Asn Gln Pro Met  
   1                    5                    10                    15  
 Cys Phe Leu Ile Arg Ser Cys Trp Ser Ala Ser Ile Asn Ala Trp Arg  
                     20                    25                    30  
 Gly Asp Arg Phe Cys Asp Ser Ser Leu Ser Asn His Asp His Met Val  
                     35                    40                    45  
 Cys Asn Arg Asn Met Pro Ser Asn Ser Gly Leu Pro Ser Asn Asp Asp  
                     50                    55                    60  
 Met Phe Thr Asn Phe Cys Arg Thr Cys Asn Ala Cys Leu Gly Asn Asn  
                     65                    70                    75                    80  
 Asn Thr Met Leu Ser Asn Phe Tyr Val Met Ser Tyr Leu Tyr Leu Val  
                     85                    90                    95  
 Ile Tyr Phe Ser Ser Phe Met Asp His Gly Val Leu Glu Ser Thr Thr  
                     100                    105                    110  
 Ile Tyr Arg Ser Val Gly Ser Asp Phe Tyr Ile Ile Thr Tyr Asn His  
                     115                    120                    125

Ile Ala

130

&lt;210&gt;1266

&lt;211&gt;78

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1266

Glu Ala Val Phe Val Ser Gly Lys Lys Asp Gly Val Arg Gly Met Ile  
   1                    5                    10                    15  
 Phe Val Pro Leu Ser Ile Leu Val Leu Ile Phe Leu Pro Leu Pro Gln  
                     20                    25                    30  
 Ile Leu Leu Asp Phe Gly Leu Cys Ile Ser Phe Ala Leu Ser Leu Leu  
                     35                    40                    45  
 Thr Val Cys Trp Val Phe Thr Leu Asn Ser Ser Asn Ser Ala Lys Phe  
                     50                    55                    60  
 Phe Leu His Phe Ser Tyr Ile Phe Ala Tyr Cys Gly Trp Asp  
                     65                    70                    75

&lt;210&gt;1267

&lt;211&gt;74

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1267

Leu Cys Thr Asp Ser Thr Ser Ile Ser Cys Cys Ser Ile Ile Ile Glu  
   1                    5                    10                    15  
 Gly Cys Asn Ser Trp Val Val Phe Tyr Arg Thr Thr Asn Ala Ile Asp  
                     20                    25                    30  
 Ser Pro Ser Arg Gly Met Val Ser Arg Asp Val Arg Phe His Gly Lys  
                     35                    40                    45  
 Ile Ile Val Glu Asp His Arg Thr Gly Ile Leu Cys Lys Asn Ala Leu  
                     50                    55                    60  
 Leu Met Tyr Ser Tyr Cys Thr Thr Gln Thr  
                     65                    70

&lt;210&gt;1268

&lt;211&gt;90

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1268

Met Gly Ala Glu Ile Glu Ile Ser Gly Val Leu Asp Ser Glu Leu Ser  
 1 5 10 15  
 Leu Val Leu Ala Pro Cys Leu Cys Ala His Pro Thr Lys Ala Phe Ile  
 20 25 30  
 Asn Gly Glu Ser Ser Arg Gly Leu Pro Phe Leu Arg Gly Thr Ser Cys  
 35 40 45  
 Gly Glu Pro Val Leu Ser Val Ser Ser Ile Ser Glu Gly Asp Pro Thr  
 50 55 60  
 Asp Ile Glu Ser Ser Ser Glu Glu Val His Ser Ser Pro Arg His Val  
 65 70 75 80  
 Gln Gln Arg Pro Thr Ala Ser Ala Ala Ala  
 85 90

&lt;210&gt;1269

&lt;211&gt;184

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1269

Phe Phe Val Phe Thr His Val Trp Tyr Leu Ile Ser Arg Gly Tyr Phe  
 1 5 10 15  
 Tyr Ser Leu Phe Ser Leu Gly Val Gly Ala Leu Ala Thr Leu Thr Leu  
 20 25 30  
 Ala Thr Arg Ile Gly Arg Ser Pro Ile Leu Tyr Pro Phe Ala Asn Ser  
 35 40 45  
 Ser Lys Ile Val Pro Ser Gly Thr Ser Glu Val Ser Ser Val Cys Thr  
 50 55 60  
 Ala Ser Cys Arg Lys Gly Leu Asn Phe Trp Pro Ile Glu Glu Tyr Ser  
 65 70 75 80  
 Ile Ile Pro Phe Ser Ser Lys Ile Cys Leu Asn Trp Leu Arg Ile Met  
 85 90 95  
 Leu Asn Pro Arg Ala Gln Phe Phe Thr Ser Ser Asp Ile Cys Val Ala  
 100 105 110  
 Asn Pro Arg Ala Phe Ser Met Leu Ser Met Gly Leu Arg Lys Ser Ile  
 115 120 125  
 Lys Val Phe Ser Lys Ala Tyr Cys Ile Ser Ser Trp Arg Ser Phe Cys  
 130 135 140  
 Lys Arg Phe Leu Glu Phe Ser Asp Ser Ala Arg Ala Met Arg Tyr Leu  
 145 150 155 160  
 Ser Phe Phe Ser Phe Asn Ser Val Phe Arg Val Thr Ile Ser Cys Cys  
 165 170 175  
 Lys Cys Ser Thr Ser Phe Ser Phe  
 180

&lt;210&gt;1270

&lt;211&gt;98

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1270

Leu Ile Ser Val Glu Glu Thr Pro Glu Ser Ser Ile Phe Ala Phe Ser  
 1 5 10 15  
 Ala Ala Ser Leu Ser Leu Cys Lys Ala Ile Leu Ser Leu Leu Arg Ser  
 20 25 30  
 Met Pro Ser Cys Phe Leu Asn Ser Ser Ile Ile His Leu Ile Met Thr  
 35 40 45  
 Ser Ser Lys Ser Ser Pro Pro Arg Arg Val Ser Pro Phe Val Asp Arg  
 50 55 60  
 Thr Ser Lys Thr Pro Ser Pro Ile Ser Arg Met Glu Ile Ser Lys Val  
 65 70 75 80  
 Pro Pro Pro Arg Ser Lys Thr Ala Ile Phe Leu Ser Pro Thr Leu Ser  
 85 90 95  
 Ile Pro

&lt;210&gt;1271

&lt;211&gt;78

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1271

Phe Leu Lys Thr Met Thr Lys Gly Phe Ala Phe Cys Ser Ala Ser Phe  
 1 5 10 15  
 Pro Ile Ala Ile Ile Glu Asn Val Val Ser Lys Ser Val Glu Gly Val  
 20 25 30  
 Ser His Pro Glu Gly Glu Asn Ala Asn Pro Ser Leu Leu Ser Leu Val  
 35 40 45  
 Met Ala Ser Trp Thr Leu Gly Gly Thr Ser Thr Ser Ser Leu Asn Lys  
 50 55 60  
 Ala Leu Ala Lys Val Leu Ile Ser Ser Gly Asp Val Phe Pro  
 65 70 75

&lt;210&gt;1272

&lt;211&gt;122

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1272

Met Thr Thr Gly Ser Cys Ser Pro Ser Lys Ala Leu Phe Val Cys Ile  
 1 5 10 15  
 Asn Cys Ile Ala Phe Ile Glu Met Ser Thr Asn Thr Thr Glu Ala Ala  
 20 25 30  
 Pro Arg Leu Arg Ala Ser Lys Pro Ile Ala Pro Ile Pro Ala Lys Arg  
 35 40 45  
 Ser Lys Lys Ala Ala Pro Ser Ile Ser Ser Leu Gln Ile Leu Lys Asn  
 50 55 60  
 Ala Ser Phe Thr Lys Pro Glu Val Gly Arg Ile Cys Gly Leu Glu Asn  
 65 70 75 80  
 Val Phe Lys Asp Phe Pro Leu Tyr Leu Pro Ala Lys Ile Leu Thr Ser  
 85 90 95  
 Pro Leu Glu Glu Gln Ser Leu Arg Asn Gln Gln Pro Leu Val Cys Ser  
 100 105 110  
 Gly Ser Leu Gly Tyr Tyr Arg Ile His Leu  
 115 120

&lt;210&gt;1273

&lt;211&gt;112

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1273

Phe Thr Phe Phe Phe Leu Ala Gln Leu Glu Lys Gln Leu Pro His Leu  
 1 5 10 15  
 Val Leu Phe Phe Phe Phe Ser Ala Thr Ser Ser Leu Arg Ala Ser Phe  
 20 25 30  
 Ile His Ser Ser Leu Trp Ser Arg Val Phe Ser Ser Ser Phe Leu Arg  
 35 40 45  
 Phe Ala Lys Phe Thr Ser Ala Phe Ser Ser Ser Leu Glu Ala Ala Ser  
 50 55 60  
 Thr Thr Ser Phe Cys Leu Leu Thr Phe Ser Ser Ser Ser Glu Ser Cys  
 65 70 75 80  
 Thr Ala Thr Thr Leu Met Tyr Asp Phe Ile Cys Lys Thr Ala Ser Leu  
 85 90 95  
 Val Val Pro Ser Ser Asn Lys Ser Arg Ser Cys Trp Ile Phe Cys Ile  
 100 105 110

&lt;210&gt;1274

&lt;211&gt;82

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1274

Leu Ser Ala Lys Leu Met Lys Thr Ser Leu Gly Val Cys Val Gly Ile  
 1 5 10 15  
 Ala Gly Ile Ser Lys Gly Arg Cys Leu Ile Asn Ala Lys Ser Pro Phe  
 20 25 30

Ser Leu Lys Ile Ser Glu Arg Ser Glu Arg Glu Arg Val Trp Arg Ser  
           35                          40                          45  
 Tyr Val Tyr Ser Val Asp Val Gly Pro Gly Val Phe Leu Met Met Thr  
           50                          55                          60  
 Ser Lys Arg Glu Arg Leu Phe Pro Arg Arg Ile Ala Val Thr Thr Pro  
           65                          70                          75                          80  
 Glu Thr

&lt;210&gt;1275

&lt;211&gt;134

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1275

Met Asn Ser Pro Thr Ile Lys Asp Pro Ser Leu Glu Thr Ala Cys Ala  
   1                          5                          10                          15  
 Asp Asp Leu Leu Ala Pro Gly Ile Leu Glu Ser Arg Cys Cys Ser Pro  
           20                          25                          30  
 Ser Phe Gln Tyr Thr Ala Leu Ala Ile Ser Ser Leu Pro Met Ala Ser  
           35                          40                          45  
 Pro Thr Ile Thr Glu Pro Ser Ser Glu Ala Ser Gln Ala Gln Glu Cys  
           50                          55                          60  
 Arg Ser Ser Gly Lys Leu Gly Arg Thr Thr Ile Pro Val Ser Ser His  
           65                          70                          75                          80  
 Phe Thr Ala Lys Phe Val Ser Val Ser Ser Leu Tyr Arg His Pro Thr  
                           85                          90                          95  
 Ile Val Phe Pro Ser Leu Glu Thr Pro Ser Ala Lys Asp Cys Ile Pro  
                           100                          105                          110  
 Ser Glu Asn Ile Pro Arg Ser Thr Ser Ala Pro Phe Thr His Phe Thr  
           115                          120                          125  
 Ala Arg Gln Asp Gly Ser  
           130

&lt;210&gt;1276

&lt;211&gt;84

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1276

Met Arg Ser Trp Thr Arg Trp Thr Arg Cys Gly Ser Cys Cys Arg Cys  
   1                          5                          10                          15  
 Ser Gly Ser Trp Arg Cys Ser Arg Ser Cys Cys Arg Asn His Gly Ser  
           20                          25                          30  
 Asn Thr Asn Tyr Ser Ser Ser Cys Cys Pro Ser Gly Glu Thr Ser Cys  
           35                          40                          45  
 Tyr His Ser Cys Gln Thr Ser Asp His Arg Gly Tyr Lys Ser Gly Cys  
           50                          55                          60  
 Gln Ile Trp Asn Lys Ser Ile Tyr Gln Asn Phe Ser Gln Ser Asp Cys  
           65                          70                          75                          80  
 Gln Ser His Phe

&lt;210&gt;1277

&lt;211&gt;76

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1277

Met Arg Glu Phe Ser Cys Ile Lys Asp Arg Lys Asn Arg Cys Phe Arg  
   1                          5                          10                          15  
 Ala Ala Ala Val Lys Ile Met Cys Thr Pro Ser Arg Ser Ser Ala Arg  
           20                          25                          30  
 Thr Thr Arg Pro Lys Glu Val Lys Lys Arg Thr Ser Leu Glu Tyr Ile  
           35                          40                          45  
 Gln Ser Ile Trp Asp Leu Gly Pro Leu Asp Val Tyr Ser Cys Phe Ser  
           50                          55                          60  
 Lys Glu Thr Ser Ser Glu Leu Tyr Ala Lys Arg Phe  
           65                          70                          75  
 <210>1278



<211>78  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1278  
 Met Met Ile Val Arg Cys Cys Phe Arg Ala Leu Leu Cys Phe Ser Met  
           1                  5                  10                  15  
 Cys Ser Arg Thr Ser Arg Pro Arg Ser Pro Ile Lys Ala Ile Thr Leu  
                   20                  25                  30  
 Ile Val Asp Phe Asp Pro Lys Ala Ile Ala Glu Ser Ser Glu Asp Phe  
                   35                  40                  45  
 Pro Leu Pro Gly Ser Glu Lys Thr Pro Ile Arg Cys Pro Phe Pro Lys  
           50                  55                  60  
 Val Arg Asn Ala Ser Ile Ala Leu Ile Pro Val Gly Lys Ile  
           65                  70                  75

<210>1279  
 <211>86  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1279  
 Met Arg Arg Ile Phe Pro Thr Ser Ile Leu Leu Ile Ala Thr Phe Cys  
           1                  5                  10                  15  
 Lys Leu Pro Ser Ser Lys Thr Ser Gln Pro Val Val Gly Ala Ser Cys  
                   20                  25                  30  
 Phe Lys Glu Thr Lys Val Leu Phe Ala Phe Pro Asp Thr Ile Cys Pro  
                   35                  40                  45  
 Asn Ala Ser Glu Ile Ala Asn Lys Thr Arg Ser Lys Ala Pro Ser Lys  
           50                  55                  60  
 Ala Pro Pro Ile Lys Ile Glu Pro Lys Gly Ala Asp Val Ile Lys Ile  
           65                  70                  75                  80  
 Ser Met Phe Thr Thr Phe  
                                   85

<210>1280  
 <211>124  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1280  
 Val Lys Gly Val Leu Lys Arg Gln Arg Leu Ser Leu Thr Met Gly Gly  
           1                  5                  10                  15  
 Arg Ser Lys Leu Lys Arg Arg Ser Trp Leu Lys Ala Ala Gln Thr Thr  
                   20                  25                  30  
 Pro Val Val Cys Trp Arg Arg Asn Val Ile Phe Ser Thr Val Ile Phe  
                   35                  40                  45  
 Ser Pro Ala Ile Ile Arg Ser Pro Ser Ser Ser Leu Glu Ala Ser Ser  
           50                  55                  60  
 Thr Thr Ile Thr Asn Phe Pro Ala Leu Lys Ser Ser Ile Ala Arg Ser  
           65                  70                  75                  80  
 Lys Glu Thr Lys Phe Ala Glu Pro Thr Ser Ser Arg Val Ser Ile Ile  
                   85                  90                  95  
 Asp Ser Leu Ala Leu Thr Asp Ser Asp Ala Lys His Ala Thr Leu Lys  
                   100                  105                  110  
 Ile Leu Ser Phe Gln Phe Leu Met Gly Ser Lys Thr  
           115                  120

<210>1281  
 <211>85  
 <212>PRT  
 <213>Chlamydia pneumoniae  
 <400>1281  
 Ile Gln Arg Thr Leu Cys Leu Leu Phe Phe Lys Lys Phe Ile Leu Leu  
           1                  5                  10                  15  
 Ile Leu Val Arg Thr Leu Arg Phe Pro Ile Leu Thr Phe Leu Ser Trp  
                   20                  25                  30  
 Leu Asn Phe Arg Leu Lys Leu Ile Phe Ser Leu Ile Leu Tyr Gly Leu  
           35                  40                  45  
 Ala Asn Val Ala Gln Leu Val Arg Ala Ser Asp Cys Gly Ser Glu Gly

50                      55                      60  
 Arg Gly Phe Lys Pro Arg Arg Ser Pro Ser Leu Ser Ser Leu Phe Leu  
 65                      70                      75                      80  
 Leu Phe Phe Leu Ile  
                                  85

&lt;210&gt;1282

&lt;211&gt;112

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1282

Val Leu Tyr Asn Pro Lys Ala Phe Ile Thr His Ala Ala Ser Leu Arg  
 1                      5                      10                      15  
 Gln Thr Phe Val His Cys Glu Arg Phe Ser Thr Ala Ala Ser Arg Arg  
                                  20                      25                      30  
 Ser Leu Gly Ser Val Ser Val Pro Val Leu Ala Val Asn Leu Ser Ile  
                                  35                      40                      45  
 Arg Leu Asp Val Ile Ala Leu Val Gly Phe Tyr Pro Thr Asn Lys Leu  
                                  50                      55                      60  
 Ile Ser His Lys Leu Phe Leu Asn Arg Lys Val Arg Arg Ser Pro Ser  
                                  65                      70                      75                      80  
 Leu Ile Tyr Ile Arg Cys Leu Ile Thr Leu His Ser Val Leu Ala Ile  
                                  85                      90                      95  
 Val Ser Asn Arg Tyr Pro Gln Val Glu Gly Arg Leu Ser Met Tyr Tyr  
                                  100                      105                      110

&lt;210&gt;1283

&lt;211&gt;77

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1283

Leu Glu Ser Gly Leu Pro Arg Phe Arg Leu Gly Phe Thr Cys Leu Ala  
 1                      5                      10                      15  
 Leu Leu Arg Tyr Arg Leu Ala Ser Phe Val Phe Ser Phe Thr Gly Leu  
                                  20                      25                      30  
 Ser Pro Cys Ile Val Gln Leu Ser Arg Ser Ile Gln Leu Lys Leu Lys  
                                  35                      40                      45  
 Ile Pro Cys Tyr Arg Pro Tyr Asn Pro Ile Leu Lys Ile Trp Phe Arg  
                                  50                      55                      60  
 Leu Phe Pro Phe Arg Ser Pro Leu His Arg Glu Ser Leu  
                                  65                      70                      75

&lt;210&gt;1284

&lt;211&gt;85

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1284

Met Ile Tyr Gln Asn Gly Ile Gly Val Trp Asn Ile Asn Pro Val Phe  
 1                      5                      10                      15  
 Tyr Gln Cys Ser Ser Asn Glu Asp Val Gly Phe Leu Ile Phe Glu Phe  
                                  20                      25                      30  
 Arg Lys Asp Ile Arg Glu Val Leu Ser Ser His Leu Thr Met Ser Tyr  
                                  35                      40                      45  
 Ala Asn Thr Ser Leu Arg Asn Gln Ile Ala Asn Gly Leu Ser Lys Ser  
                                  50                      55                      60  
 Ile Asp Ala Leu Asn Pro Ile Met Asn Asp Ile Gly Leu Ser Ser Ser  
                                  65                      70                      75                      80  
 Lys Glu Leu Val Pro  
                                  85

&lt;210&gt;1285

&lt;211&gt;94

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1285

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 35 40 45  
 Tyr Lys Pro Trp Lys Lys Gly Lys Ser His Lys Asn Asn Cys Ile Leu  
 50 55 60  
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&lt;210&gt;1286

&lt;211&gt;74

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1286

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 35 40 45  
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 65 70

&lt;210&gt;1287

&lt;211&gt;88

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1287

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&lt;210&gt;1288

&lt;211&gt;119

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1288

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 85 90 95  
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&lt;210&gt;1289

&lt;211&gt;126

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1289

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Arg Glu Ile Ser Pro Ala Lys Lys Pro Ala Lys Ala Lys Ile Pro Pro
             35             40             45
Pro Leu Lys Ile Ala Thr Met Pro Ile Pro Ile Glu Thr Asn Gly Ala
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Ser Gln Pro Ile Met Ser Glu Arg Asp Pro His Asn Leu Ser Arg Phe
             65             70             75             80
Ser Phe Ser Met Leu Thr Leu Ile Val Ser Ile Leu Phe Ser Cys Arg
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Ala Ser Ser Ser Arg Cys Val Asp Ser Thr Glu Ser Leu Trp His Pro
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Tyr Glu Glu Lys Ser Glu Arg Ile Pro Cys Phe Val Ser Arg
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&lt;210&gt;1290

&lt;211&gt;94

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1290

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Phe Ile Thr Phe Trp Leu Ala Leu Pro Thr Ser Thr Ser Glu His Pro
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&lt;210&gt;1291

&lt;211&gt;98

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;1291

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             35             40             45
Ser Ser Thr Thr Thr Arg His Asp Tyr Phe Lys Asp Ser Ala Val Phe
             50             55             60
Glu Arg Phe Tyr Thr Gly Ile Tyr Arg Asn Asp Ile Pro Lys Glu Leu
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| Ser | Cys | Leu | Pro | Leu | Arg | Asp | Ser | Gly | Thr | Ser | Pro | Trp | Ile | Ser | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     | 15  |     |     |
| Arg | Ala | Asn | Pro | Ser | Ala | Ile | Ala | Val | Phe | Pro | Thr | Pro | Gly | Ser | Pro |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     | 30  |     |     |     |
| Ile | Ser | Ile | Gly | Leu | Phe | Leu | Val | Leu | Arg | Glu | Ser | Thr | Trp | Met | Val |
|     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Leu | Arg | Ile | Ser | Ser | Ser | Leu | Pro | Ile | Thr | Gly | Ser | Ser | Leu | Pro | Ser |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Arg | Ala | Asn | Ala | Val | Lys | Phe | Leu | Gln | Tyr | Phe | Ser | Lys | Pro |     |     |
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<400>6845

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| Met | Phe | Ser | Met | Ser | Phe | Lys | Arg | Phe | Leu | Gln | Gln | Ile | Pro | Val | Arg |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     | 15  |     |     |
| Ile | Cys | Leu | Leu | Ile | Ile | Tyr | Leu | Tyr | Gln | Trp | Leu | Ile | Ser | Pro | Leu |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |     |

Leu Gly Ser Cys Cys Arg Phe Phe Pro Ser Cys Ser His Tyr Ala Glu  
                   35                                  40                                  45  
 Gln Ala Leu Lys Ser His Gly Phe Leu Met Gly Cys Trp Leu Ser Ile  
                   50                                  55                                  60  
 Lys Arg Ile Gly Lys Cys Gly Pro Trp His Pro Gly Gly Ile Asp Met  
                   65                                  70                                  75                                  80  
 Val Pro Lys Thr Ala Leu Gln Glu Val Leu Glu Pro Tyr Gln Glu Ile  
                                   85                                  90                                  95  
 Asp Gly Gly Asp Ser Ser His Phe Ser Glu  
                                   100                                  105

&lt;210&gt;6846

&lt;211&gt;79

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;6846

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   1                                  5                                  10                                  15  
 Ser Ile Leu Ser Thr Pro Tyr Asn Asn Arg Ala Ile Arg Arg Asn Ser  
                   20                                  25                                  30  
 Ile Arg Phe Arg Leu His Cys Pro Cys Gly Arg Glu Gln Ile His Phe  
                   35                                  40                                  45  
 Ile Val Phe Pro Cys Asp Cys Glu Thr Leu Arg Lys Leu Ile Leu Asp  
                   50                                  55                                  60  
 Asn Pro Arg Asp Tyr Arg Pro Ile Arg Gly Asp Ser Cys Cys Phe  
                   65                                  70                                  75

&lt;210&gt;6847

&lt;211&gt;103

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;6847

Ile Leu Arg Val Ala Val Ala Ser Ile Ser Tyr Gln Gln Cys Ser Lys  
   1                                  5                                  10                                  15  
 Glu Glu Leu Gly Cys Gln Val Glu His Arg Lys Gln Gly Lys Ile Gln  
                   20                                  25                                  30  
 Lys Pro Leu His Tyr Ile Asn Ala Ile Gly Gly Ser Arg Ser Leu Thr  
                   35                                  40                                  45  
 Leu Thr Tyr Thr Cys Ser Ser Glu Val Val Leu Leu Pro Ile Thr Gly  
                   50                                  55                                  60  
 Arg Val Leu Gln Leu Arg Cys Thr Ser Leu Glu Asn Arg Met Tyr Lys  
                   65                                  70                                  75                                  80  
 Leu Gln Tyr Arg Ser Pro Leu Arg Asp Ser Pro Arg Asp Leu Glu Ser  
                                   85                                  90                                  95  
 Val Val Gly Leu Val His Cys  
                                   100

&lt;210&gt;6848

&lt;211&gt;88

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;6848

Arg Leu Cys Arg Pro Arg Pro Tyr Arg Leu Ala Met Pro Pro Lys Gly  
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 Arg Met Arg Ile Leu Ser Leu Ser Glu Arg Arg Phe Tyr Gly Lys Arg  
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 Glu Val Arg Ile Ile Leu Glu Thr Arg Glu Ile Leu Val Val Phe Glu  
                   35                                  40                                  45  
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                   50                                  55                                  60  
 Pro Asn Lys Gly Thr Cys Ile Leu Val Cys Ile Leu Asn Ile Val Leu  
                   65                                  70                                  75                                  80  
 Phe Ser Val Gly Pro Ser Phe Trp  
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&lt;210&gt;6849

&lt;211&gt;141

&lt;212&gt;PRT

&lt;213&gt;Chlamydia pneumoniae

&lt;400&gt;6849

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      20           25           30
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      35           40           45
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      50           55           60
Met Val Ala Leu Tyr Ile Pro Ser Ala Leu Gln Leu Ser Val Phe Pro
      65           70           75           80
Ser Leu Leu Leu Ile Thr Thr Met Phe Arg Leu Gly Ile Ile Phe Pro
      85           90           95
Leu Leu Asp Arg Phe Ser Leu Lys Arg Met Arg Val Met Ser Phe Arg
      100           105           110
Leu Arg Arg Leu Arg Gly Trp Arg Glu Leu Cys Gly Arg Val His Tyr
      115           120           125
Leu Pro His Tyr Tyr Asn His Ser Val Tyr Arg Ser Asn
      130           135           140

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## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

|  |  |   |
|--|--|---|
| <b>(51) International Patent Classification <sup>6</sup> :</b><br><b>C12N 15/31, 15/62, C07K 14/295, 16/12, 19/00, A01K 67/027, A61K 39/118, G01N 33/53, C12Q 1/68</b>   | <b>A3</b>  | <b>(11) International Publication Number: WO 99/27105</b><br><br><b>(43) International Publication Date: 3 June 1999 (03.06.99)</b> |
| <b>(21) International Application Number:</b> PCT/IB98/01890<br><b>(22) International Filing Date:</b> 20 November 1998 (20.11.98)<br><br><b>(30) Priority Data:</b><br>97/14673                      21 November 1997 (21.11.97)    FR<br>60/107,078                  4 November 1998 (04.11.98)    US<br><br><b>(71) Applicant (for all designated States except US):</b> GENSET [FR/FR]; 24, rue Royale, F-75008 Paris (FR).<br><br><b>(72) Inventor; and</b><br><b>(75) Inventor/Applicant (for US only):</b> GRIFFAIS, Rémy [FR/FR]; 51, boulevard Romain Roland, F-92120 Montrouge (FR).<br><br><b>(74) Agents:</b> MARTIN, Jean-Jacques et al.; Cabinet Regimbeau, 26, avenue Kléber, F-75116 Paris (FR).   | <b>(81) Designated States:</b> AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).<br><br><b>Published</b><br><i>With international search report.</i><br><i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i><br><br><b>(88) Date of publication of the international search report:</b><br>11 November 1999 (11.11.99) |   |
| <b>(54) Title:</b> <i>CHLAMYDIA PNEUMONIAE</i> GENOMIC SEQUENCE AND POLYPEPTIDES, FRAGMENTS THEREOF AND USES THEREOF, IN PARTICULAR FOR THE DIAGNOSIS, PREVENTION AND TREATMENT OF INFECTION<br><br><b>(57) Abstract</b><br><br><p>The subject of the invention is the genomic sequence and the nucleotide sequences encoding polypeptides of <i>Chlamydia pneumoniae</i>, such as cellular envelope polypeptides, which are secreted or specific, or which are involved in metabolism, in the replication process or in virulence, polypeptides encoded by such sequences, as well as vectors including the said sequences and cells or animals transformed with these vectors. The invention also relates to transcriptional gene products of the <i>Chlamydia pneumoniae</i> genome, such as, for example, antisense and ribozyme molecules, which can be used to control growth of the microorganism. The invention also relates to methods of detecting these nucleic acids or polypeptides and kits for diagnosing <i>Chlamydia pneumoniae</i> infection. The invention also relates to a method of selecting compounds capable of modulating bacterial infection and a method for the biosynthesis or biodegradation of molecules of interest using the said nucleotide sequences or the said polypeptides. The invention finally comprises, pharmaceutical, in particular vaccine, compositions for the prevention and/or treatment of bacterial, in particular <i>Chlamydia pneumoniae</i>, infections.</p> |  |   |

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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/IB 98/01890

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:  
Remark: Although claims 40-43  
are directed to a method of treatment of the human/animal  
body, the search has been carried out and based on the alleged  
effects of the compound/composition.
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such  
an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all  
searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment  
of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report  
covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is  
restricted to the invention first mentioned in the claims: it is covered by claims Nos.:  
claims 1-3 and 7,9,11,13,26,27,30,44,45,48 (partially)

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

International Application No

PCT, .B 98/01890

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No. |
|------------|--|-----------------------|
| T          | <p>"http://www.ncbi.nlm.nih.gov/cgi-bin/Entrez/frameset?db=Genome&amp;gi=140"</p> <p>KALMAN S. ET AL., December 1998 (1998-12), XP002104860</p> <p>page 1 -page 2</p> <p>-----</p> | <p>1-3,7,9, 11,13</p> |

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT, .B 98/01890

| Patent document<br>cited in search report | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
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|   |                     | JP 9015244 A               | 17-01-1997          |
| -----                                     |                     |                            |                     |

Form PCT/ISA/Z10 (patent family annex) (July 1992)

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

Invention 1 : claims 1-3 and 7,9,11,13,26,27,30,44,45,48 (partially)  
nucleotide seq.id.n.1 coding for the genome of  
Chlamydia pneumoniae, corresponding vector, host, method of  
detection, DNA chip, screening assay and kit.

Invention 2 : claims 4-56 (partially)

ORF2 of Chlamydia pneumoniae, fragments, corresponding  
polypeptides, nucleotide sequences, DNA chip, cloning  
vector, host, method for producing polypeptides, fusion poly-  
peptide, method for the detection, kit, antibody, immunogenic  
and pharmaceutical composition, screening assay.

Inventions 3-1297 : identical to invention 2, but applied to orf3-1297, in  
which invention 3 is limited to ORF3, invention 4 to ORF4, etc..  
until invention 1297 that is limited to ORF1297.

## INTERNATIONAL SEARCH REPORT

International Application No

PCT, .B 98/01890

| C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT |  |   |
|--|--|---|
| Category *   | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No.                           |
| Y  | TOMB J -F ET AL: "THE COMPLETE GENOME SEQUENCE OF THE GASTRIC PATHOGEN <i>HELICOBACTER PYLORI</i> "<br>NATURE,<br>vol. 388, no. 6642,<br>7 August 1997 (1997-08-07), pages 539-547,<br>TABEL, XP002062106<br>the whole document  | 1-3,7,9,<br>11,13,<br>26,27,<br>30,44,<br>45,48 |
| A  | ---<br>KORNAK JM ET AL: "Sequence analysis of the gene encoding the <i>Chlamydia pneumoniae</i> DnaK protein homolog."<br>INFECT IMMUN, FEB 1991, 59 (2) P721-5,<br>XP002076846<br>UNITED STATES<br>abstract<br>page 724   | 1   |
| A  | ---<br>WATSON MW ET AL: "The CrP operon of <i>Chlamydia psittaci</i> and <i>Chlamydia pneumoniae</i> ."<br>MICROBIOLOGY, OCT 1995, 141 ( PT 10) P2489-97, XP002076847<br>ENGLAND<br>abstract<br>page 2942 -page 2943   | 1   |
| A  | ---<br>LOBAU S ET AL: "Molecular cloning, sequence analysis, and functional characterization of the lipopolysaccharide biosynthetic gene <i>kdtA</i> encoding 3-deoxy-alpha-D-manno-octulosonic acid transferase of <i>Chlamydia pneumoniae</i> strain TW-183."<br>MOL MICROBIOL, NOV 1995, 18 (3) P391-9,<br>XP002076848<br>ENGLAND<br>abstract | 1   |
| A  | ---<br>PETERSON EM ET AL: "Characterization of the murine antibody response to peptides representing the variable domains of the major outer membrane protein of <i>Chlamydia pneumoniae</i> ."<br>INFECT IMMUN, AUG 1996, 64 (8) P3354-9,<br>XP002076849<br>UNITED STATES<br>abstract   | 1   |
| A  | ---<br>EP 0 784 059 A (HITACHI CHEMICAL CO LTD)<br>16 July 1997 (1997-07-16)<br>claims 1-45<br>---<br>-/--   | 1   |

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/88 98/01890

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 C12N15/31 C12N15/62 C07K14/295 C07K16/12 C07K19/00  
A01K67/027 A61K39/118 G01N33/53 C12Q1/68

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 C07K C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No.                                      |
|------------|--|--|
| Y          | <p>PEREZ MELGOSA M ET AL: "Isolation and characterization of a gene encoding a Chlamydia pneumoniae 76-kilodalton protein containing a species-specific epitope."<br/>INFECT IMMUN, MAR 1994, 62 (3) P880-6,<br/>XP002076845<br/>UNITED STATES<br/>abstract<br/>page 880, right-hand column, paragraph 3<br/>-page 881, left-hand column, paragraph 1<br/>---<br/>-/--</p> | <p>1-3,7,9,<br/>11,13,<br/>26,27,<br/>30,44,<br/>45,48</p> |



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

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Date of the actual completion of the international search

3 June 1999

Date of mailing of the international search report

17. 09. 99

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